

**STRUCTURE AND SOCIO-ECONOMIC CONDITIONS OF
MIGRANT POPULATION IN EAST AND
SOUTH DISTRICTS OF SIKKIM SINCE 1975 : A
GEOGRAPHICAL STUDY**

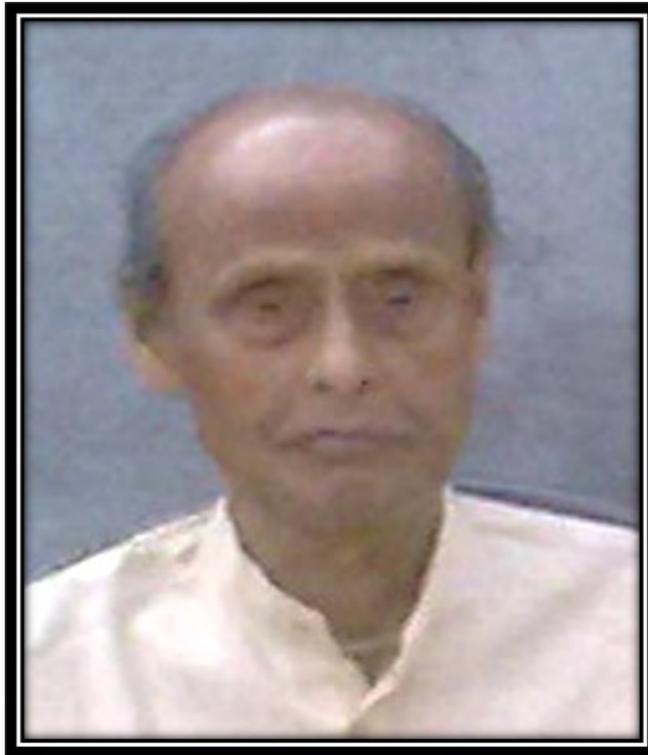
**A THESIS SUBMITTED TO THE UNIVERSITY OF NORTH BENGAL
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN GEOGRAPHY
UNDER THE CENTRE FOR HIMALAYAN STUDIES
UNIVERSITY OF NORTH BENGAL**

**Submitted by
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Darjeeling, West Bengal**

2021



Dedicated to the eternal memory of my father

Late Harendra Chandra Choudhury

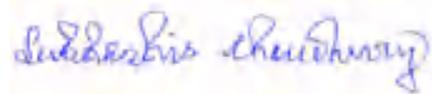
who was my greatest source of achievement, pride and inspirations

DECLARATION

I hereby declare that the thesis entitled “**STRUCTURE AND SOCIO-ECONOMIC CONDITIONS OF MIGRANT POPULATION IN EAST AND SOUTH DISTRICTS OF SIKKIM SINCE 1975: A GEOGRAPHICAL STUDY**” is a genuine research work has been prepared by me under the guidance and supervision of Dr. Rangadhar Sahu, Professor (Retd.), Centre for Himalayan Studies, University of North Bengal.

The present research work is original and independent work done by me. It is being submitted for the award of degree of Doctor of Philosophy in Geography under the Centre for Himalayan Studies as per requirement of University of North Bengal.

I also declare that, the thesis has not formed, in whole or parts, the basis for the award of any degree or fellowship of this university or any other university.



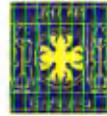
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I certify that the thesis entitled "**Structure and Socio-economic Conditions of Migrant Population in East and South Districts of Sikkim Since 1975: A Geographical Study**" submitted by **Shri. Subhrashis Choudhury**, Research Scholar, Centre for Himalayan Studies, University of North Bengal for the award of the degree of Doctor of Philosophy of the University of North Bengal under my guidance and supervision, is an original work done by the researcher. **He has fulfilled all the requirements of Ph.D. regulation of this University for the submission of this thesis. This thesis has not been published previously, nor submitted anywhere for any degree whatsoever.**

The thesis may now be placed before the examiners for evaluation.

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ABSTRACT

STRUCTURE AND SOCIO-ECONOMIC CONDITIONS OF MIGRANT POPULATION IN EAST AND SOUTH DISTRICTS OF SIKKIM SINCE 1975: A GEOGRAPHICAL STUDY

Introduction

Migration of population is a global phenomenon. It poses serious problems both for the migrants as well as the areas to which the people come and settle down. The economic and social aspects of migration are a challenging one, especially at a time of debate about the future direction of migration policies in Sikkim. Sikkim is a state with a varied physical phenomenon. The geographical and climatic features of the State have extremely influenced its economic as well as social development. Human settlements and economic activities have been built around differential topography, ecology and environmental areas. The impact of climatic change, terrain characteristics and other factors has to be considered for the rate of migration and also for the socio-economic conditions of the migrant population. Migrants are usually influenced by social disparity and may have diverse range of experiences in the migration process that reflect their physical, mental and social status. Therefore, it is necessary to study the perception of migrants so that migrants can have equal social value in the community.

The area of study

The study area is bounded by the north district of Sikkim in the north; West district of Sikkim in the west; the state of West Bengal in the south and Tibet and Bhutan in the east. The study area extends from 27° 4' to 27°31' north latitudes and 88°20' to 88°55'25" east longitudes. According to Census, 2011 total population of the study area is 430433, which is 70.50% of the total state population out of which 228102 are males and 202331 are females. The total area of the study area is 1704 sq. km. which constitutes 24.01% of the total geographical area of the state. The density of population of the study area is 253 persons per sq. km. The sex ratio of the study area is 888 females per one thousand males. The study area has five urban centres, which are Gangtok, Singtham and Rongpo in the East district and Namchi and Jorethang in the South district. The study area has total 271 numbers of villages.

Objectives

1. To analyse the factors and pattern of the migrant population after 1975 in the study area.
2. To measure the structure and composition of the migrant population in the study area.
3. To evaluate the socio-economic conditions of the migrant people in the study area.
4. To analyse the satisfaction levels of the migrants in the study area.

Hypothesis

1. There is no significant mean difference between Social status and economic status of in-migrants in the area of destination.
2. The socio-economic status of migrants is not dependent on demographic characteristics in the area of destination.
3. There is no significant relationship in satisfaction levels of in-migrants in the area of destination.
4. The satisfaction level of in-migrants is not dependent on demographic characteristics in the area of destination.

Database and Methodology

Both Primary and secondary sources of the database have been collected to conduct this study. Different primary and secondary data have been analysed, examined and represented both graphically and statistically. The secondary sources of data have been collected from the census reports, Sikkim gazetteers, statistical journal, meteorological centre, annual reports published by the Govt. of Sikkim, different departments of Govt. of Sikkim and NDVI maps, DEM maps and related literature. Primary data were collected through the household field survey with the help of a structured questionnaire using stratified random sampling design without replacement of a significant number of 340 respondents. Moreover, SPSS package version 26.0 has been used for statistical analysis, maps have been prepared with the help of Arc GIS software version 10.3 and Global Mapper 25.0. Finally, Microsoft Office 2019 was used to calculate and to prepare the different cartographic techniques and documentation pertaining the study.

Brief outline of the study

The whole study is comprising into seven chapters. Chapter – I addresses the brief conceptual framework, statement of the problem, review of literature, rationale of the study, objectives, hypotheses, database and methodology, sample design and size, tools and techniques and profile of the area of study. Chapter – II highlights the brief historical background of Sikkim, different physical aspects and socio-cultural characteristics and economic features of the study area. Chapter – III deals with the factors and patterns responsible for the in-migration in the study area. Chapter – IV focusses the rate of migration, structure and composition of in-migrants in the study area. Chapter – V discusses the socio-economic conditions including demographic profile, economic profile, household status of in-migrants in the study area. Chapter – VI analyse the perception of in-migrants about their level of satisfaction and level of adaptation in the study area. In Chapter – VII, summary and major findings of the study and policy implications have been presented.

Major Findings

- Distribution, density and growth of the population are very high in the study area as compared to the other districts of the state. All these have accelerated the different facilities like health, transport and communication, energy resources as well as different economic activities. Availability of these facilities is the main reason for the faster in-migration rate. The pleasant climatic condition with the mild summer season and scenic beauties is another factor for the acceleration of the in-migration. A healthier educational infrastructure has also attracted the migrant students. Lack of available labour force in the study area is another reason as to why labourers from the neighbouring states have migrated for working in different types of agricultural and other economic activities. Power infrastructure of the area is mainly based on hydropower projects, which have attracted labourers for in-migration. But, factors like unavailability of heavy mineral resources, rigid lifestyle due to mountainous terrain, citizenship Act of 1954 and land laws of the state also have forbidden them to settled down in the study area. These negative aspects gave a tremendous impediment on in-migration process.
- Result of push and pull factors indicated that forces of push factors due to the reverse circumstances in the originating place are more responsible for in-

migration, the migrants representing 52.33% and 51.33% for East and South districts respectively. Large family size, small landholding and inadequate job facilities in the homeland of in-migrants are the principal reasons of push factor for both the districts., the share of migrants for the above being 10.57%, 11.83% and 10.28% for East district and 11.09%, 12.12% and 10.74% for South district, respectively. Main pull factor of in-migration is higher income opportunities in the study area, the migrants representing 13.48% for East district and 14.43% for South district. So, it can be said that push factors are more responsible for in-migration than pull factors. The study revealed that West Bengal and Bihar are the prime sources of in-migration. West Bengal is responsible for 43.10% and 43.01% of in-migration in East and South districts, whereas Bihar is the source of 19.44% and 14.83% of in-migration in East and South districts respectively. So, it is revealed from the above study that the patterns of in-migration in the study area mainly depend on short length migration for both the internal and inter-state migration.

- The rate of in-migration has been declining since the census of 1991. East district has experienced a decline rate of migration from 27.73 in 2001 to 22.13 in 2011 and South district also has experienced a rapid decline from 16.63 in 2001 to 5.14 in 2011. In both of the districts, the rate of migration is much higher in rural areas than the urban areas. Sex ratio among the in-migrants in East district (1096 females/1000 males) and South district (1472 females/1000 males) are much higher than state and national level average, which means that females are more migrated than male. The main reason is not only marriage, but they also worked as the cultivators and agricultural labourers in the study area. East district has the maximum proportion of other workers (67.72 % in 1991 and 64.66% in 2001) among the in-migrants followed by cultivators (23.49% in 1991 and 23.54% in 2001); on the other hand, South district has the maximum proportion of cultivators (54.9% in 1991 and 51.58% in 2001) followed by others workers (37.66% in 1991 and 40.78% in 2001). It indicates that the in-migrants in the study area mainly depend on cultivations and other service activities.
- Hinduism is the dominating religion (67.89%) in East district and South district is dominated by the Muslim community (52%). General and OBC-A categories

are the dominating caste composition. In East district Bhojpuri is the prime mother tongue (45.79%) and in South district Bengali (58.67%) is the main language spoken by respondents. In East district 65.26% are married whereas in South district 57.33% are unmarried. Both the districts are dominated by nuclear family (83.68% in East and 85.33% in South districts) due to costly and toiled life in the mountainous area. Though, 84.21% and 82% respondents are literates but, 64.74% and 68.67% are having only high school education in East and South districts respectively. So, there is a lack of skilled workers in different sectors of the economy. Most of the respondents are self-employed and others mainly work in the private sectors. The main occupations are daily work (25.79%) and business (16.84%) in East district and daily work, mason and constructional work (62.33%) in South district.

Average monthly income of the respondent migrants is higher in East district than South district but the average expenditure is higher in South district. The mean annual remittance sent by migrants is also higher in South district. But average annual savings of respondents is slightly higher in East district (₹ 19147) than South district (₹ 18923).

About 24% and 30% respondents of East and South districts have borrowed loan. The average loan borrowed by the respondents is considerably higher in South district (₹ 166822) than East district (₹ 76041.67). In East district, 58.95% and 41.05% respondents have been working in urban and rural areas respectively, whereas, in South district, it is 60% for urban and 40% for rural. Average working time of respondents is 6.29 days per week and 9.89 hours per day in East district; however, in South district, it is 6.51 days per week and 9.07 hours per day. About 69.47% and 70% respondents live in a rented house in East and South districts out of which 47.16% and 58.67% live in pucca house. Electricity is highly developed in the area. But there were desiderated in the drinking water and sanitation facilities. The household status also revealed that most of the respondents did not have a healthier work environment which would affect their social life. SEI of the respondents revealed that maximum numbers of in-migrants in the district are belonging to the medium to low level of socio-economic conditions for their livelihood. So, it is revealed that the socio-economic status of the in-migrants in the study area is not in a privileged situation. In the context of the hypothesis, it shows that *there is a significant*

mean difference between social status and economic status of in-migrants in the East district of Sikkim and there is no significant mean difference between social status and economic status of in-migrants in the South district of Sikkim; the socio-economic status of in-migrants is dependent on demographic characteristics of the East district of Sikkim and the socio-economic status of in-migrants is dependent on demographic characteristics of the South district of Sikkim.

- Most of the respondents in East and South districts were devastatingly positive about their level of satisfaction including job, remittance, savings, physical and mental health, sleeping pattern, happiness, calmness, blueness, cheerfulness and nervousness. The negative perception of in-migrants specify that they have to face their impoverishment, underdevelopment in their area of origin and have also been confronted with difficulties. Though, most of the in-migrants are pleased with their different level of satisfaction means they have to live in a healthier socio-economic condition, but, most of them have denied adapting the novel aspects in the migration field. It indicates that in-migrants of the study area have acclimatized themselves by their essentiality not by their bosom. In the context of the hypothesis of *there is no significant relationship in satisfaction levels of in-migrants between East and South districts of Sikkim* indicated that job satisfaction, satisfaction with remittance, physical and mental health, satisfaction level for the sleeping pattern, happiness and calmness is statistically not significant, but saving pattern, blueness, cheerless and nervousness is statistically significant. It is revealed from the hypothesis that *the satisfaction level of in-migrants is dependent on demographic characteristics in the East district and the satisfaction level of in-migrants is not dependent on demographic characteristics in the South district.*

- **Policy Implication**

There are some recommendations that have been made to solving the problems

- Government has to initiate skill-based education for in-migrants.
- Government has taken some initiative to get extra overtime wages beyond their working time.
- Government should ensure in-migrants under the insurance policy or Group Insurance Scheme under the National Insurance Scheme.

- Government and labour department should conduct awareness programme for in-migrants.
- Government should conduct a state-level survey on migration to develop an extensive database on in-migrants
- To eradicate wage disparities in a different segment of society Government should pass an inclusive law and implement it immediately
- Government or other non-governmental organizations providing standardize quality of life to in-migrants
- Government should take initiative to provide the banking facilities to the in-migrants
- Government should ensure basic facilities to in-migrants for their livelihood.

Conclusion

It may be pointed out that the in-migrants in the study area have several varied phenomena. The researcher tries to examine the present study in different dimensions. Further research in future may reveal the other dimensions of in-migrants in the study area. The conditions of in-migrants varied time to time-related to changing society and economy. Thus, suitable strategies should be initiated to eradicate the issues mentioned by the researcher.

PREFACE

Migration is a global phenomenon since long past. The study of migration has been of increasing interest of economists, sociologists, demographers, politicians, policymakers and researchers alike who have paid attention forwards an appropriate understanding of the mechanism of migration. Several research works have also been done in this field so far. Though Sikkim has a very long history of migration with its varied physical phenomena and cultural ethnicity. Therefore, it an intensive study on migration has becomes inevitable to undertake such a study of migration not ever been undertake as yet in the state. Which has a great impact on the social and economic changes in the region.

The main objective of the present study is to examine the structure and socio-economic conditions of the migrant population and their perception towards the local set up and adjustment at the micro-level.

Keeping in view the above objectives the present work entitled, **–STRUCTURE AND SOCIO-ECONOMIC CONDITIONS OF MIGRANT POPULATION IN EAST AND SOUTH DISTRICTS OF SIKKIM AFTER 1975: A GEOGRAPHICAL STUDY”** will go a long way in understanding the migration pattern in Sikkim. The study contains chapters as follows:

Chapter I - Introduction: This chapter is the introductory part of the research work. It deals with the brief conceptual framework, statement of the problem, review of literature, the rationale of the study, objectives, hypotheses, database and methodology, sample design and size, tools and techniques and profile of the area of study.

Chapter II - Geographical set up of the study area: This chapter discusses with the physical aspects of the study area such as physiography, geology, climate, drainage system, soil, vegetation etc. It also highlights the socio-cultural and economic aspects of the study area such as growth, distribution and density of population, sex ratio, distribution of scheduled caste and scheduled tribe population, educational level, ethnicity, occupational structure, health conditions, land use pattern, mines and minerals, agricultural and industrial set up, irrigation facilities, power infrastructure, transport and communication system and tourism facilities in the study area.

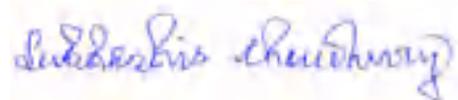
Chapter III - Factors and patterns of migration in East and South districts of Sikkim: This section of the study highlights the migration history of Sikkim along with internal, national and international migration of Sikkim as a whole; factors, which are responsible for the in-migration in the study area have been discussed in this chapter. Patterns of in-migration in the study area also have been discussed in this chapter of the study.

Chapter IV – Structure and composition of migrants in East and South districts of Sikkim: This chapter deals with the rate of migration in the study area. Structure and composition of in-migrants in East and South districts of Sikkim have also been discussed in this chapter.

Chapter V – Socio-economic conditions of migrants in East and South districts of Sikkim: This chapter deals with the social and economic status of in-migrants in the study area. Socio-economic conditions include demographic profile, economic profile and household status.

Chapter VI – Satisfaction level of migrants“: This chapter attempts to analyse the perceptions of in-migrants about their life satisfaction, for example, physical and mental health condition; job satisfaction; savings and remittance pattern; sleeping pattern; happiness, blueness, nervousness, calmness, cheerless level of migrants.

Chapter VII – Summary and Conclusion: This chapter is the last chapter of the study where a summary of the previous chapters has been discussed. This chapter includes major findings of the study and policy implications have been presented. Different dimensions regarding the scope for future research also has been indicated in this chapter.



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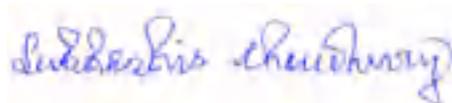
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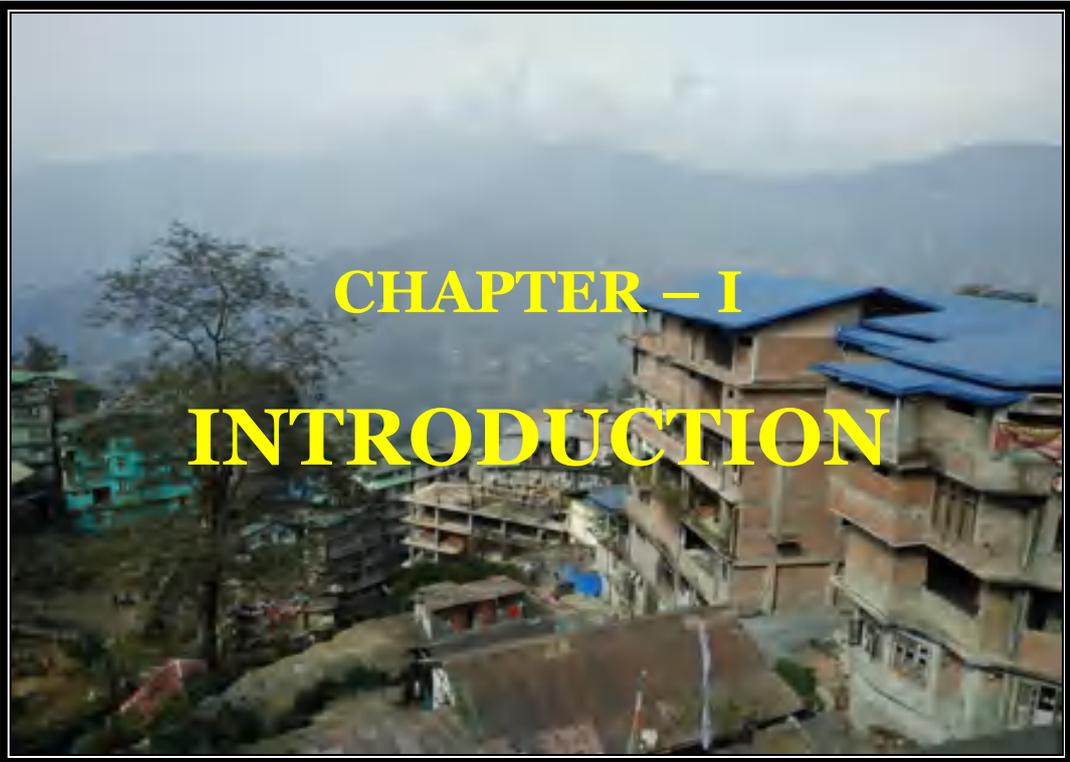
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ABBREVIATION

AAI	–	Airport Authority of India
BRO	–	Border Road Organisation
BSNL	–	Bharat Sanchar Nigam Limited
CI	–	Composite Index
CLR	–	Crude Literacy Rate
CPWD	–	Central Public Works Department
DEM	–	Digital Elevation Model
DI	–	Demographic Index
EDI	–	Education Index
EI	–	Economic Index
GMR	–	Gross Migration Rate
GSI	–	Geological Survey of India
HI	–	Health Index
ILO	–	International Labour Organization
IMR	–	In Migration Rate
INI	–	Income Index
MDR	–	Main District Road
MR	–	Migration Rate
NDVI	-	Normalized Difference Vegetation Index
NH	–	National Highway
NMR	–	Net Migration Rate
ODR	–	Other District Road
OMR	–	Out Migration Rate
PHC	–	Primary Health Centre
PHSC	–	Primary Health Sub-centre
SEI	–	Socio – Economic Index
SH	–	State Highway
SI	–	Social Index
SLI	–	Satisfaction Level Index
SPWD	–	State Public Works Department
VPT	–	Village Public Telephone
WLL	–	Wireless in Local Loop



CHAPTER - I
INTRODUCTION

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INTRODUCTION

1.1 Introduction

Migration of population is a global phenomenon (Raj, 2003). It poses serious problems both for the migrants as well as the areas to which the people come and settle down (Raj, 2003). Though the migrant population has a desire to have better economic gains, their problems of adjustment, particularly in a new environment, becomes relatively difficult (Agarwal, 1973). The study of migration is therefore important for the study of population in any region. The size and structure of the population changes radically with the process of migration (Srivastava & Srivastava, 2004). It determines the size and growth of population along with its composition and structure (Roy, 2015). It also plays an important role in the distribution of the population and determines the growth of the labour force in the region. It is the symptom of basic social and economic change in the region (Srivastava & Srivastava, 2004).

The study of migration as together with fertility and mortality determines the size, distribution and growth of population along with its composition and characteristics (Hasan, 2005). Among the components of demographic studies, migration considers more interest for population geographers. Interestingly, demographers have paid more attention to this component of population change (Maurya, 2014). Population geographers have since long been concerned with the relationships between movements of people, distance and interacting areas (Wood, 1979). Along with its various demographic, social and economic effects, population geographers have also been concerned with the environmental influences upon migration streams and consequences in areas of origin and destination (Clarke, 1977).

Migration is considered as an indicator of social change (Jhingan et al., 2003). Social change is the change in social structure (Roy, 2015). Social structure is a web of social relations. Hence, social change as a change in social structure involves social relationships (Kumar, 2005). Social relationships include social processes, social patterns and social interactions (Sharma, 2007). Changes in the ratio of men and women, young and old, birth and death rates affect social relationships. Social changes accompany changes in culture (Kumar, 2005). Even changes in the quality and size of the population affect the social organisation as well as customs and traditions,

institutions, associations etc. The form of family, marriage, religion, culture, educational structure is continually changing and transforming, as a result of which, a change occurs in the life of the individual and subsequently in his relations with others (Kumar, 2009).

Sikkim is a state with a varied physical phenomenon. The geographical and climatic features of the State have extremely influenced its economic as well as social development (Debnath, 2009). Human settlements and economic activities have been built around differential topography, ecology and environmental areas (Hussain, 2002). The impact of climatic change, terrain characteristics and other factors has to be considered for the rate of migration and also for the socio-economic conditions of the migrant population (Chakraworty, 2006). Sikkim is a multi-ethnic state with a huge number of tribal populations (Gurung, 2011). For these reasons, migrants of Sikkim have a great impact on social and economic changes of the region.

1.2 Conceptual Framework

Population geography studies geographical perspective involving demographic attributes (Verma, 2008). The study of population and its various aspects such as population growth, distribution, composition, fertility, mortality and migration are important to understand the level of development in a region (Srivastava & Srivastava, 2004). The population cannot exist without a natural environment in which people live and work. An approach to the study of population is, therefore, a significant area of geographical research.

Migration is such an event in which people move from one geographical area to another geographical area (Bhende and Kanitkar, 2003). Movements of people from one place to another are determined by a variety of factors – Demographic, cultural, political, social, economic, as well as geographical. People migrate to places where there are favourable environmental conditions and economic opportunities (Donald, 1969). Similarly, people move out of the places where socio-economic, political and other environmental conditions such as natural hazards and disasters stand unfavourable (Singh, 2006).

Migration studies have recently been undertaken not only in population geography but also in different social science disciplines in various parts of the earth (Kaur, 1996). This is because an increasing migration rate has obstructed the overall

economic prosperity and has created various problems in society and the economy (Maurya, 2014). The administrator, the politician, the environmental planners, the geographer and other social scientists at large are sometimes concerned with the problems of migration that require speedy solutions (Sharma, 2012).

Migration has great importance for increase or decrease in the population size (Roy, 2015). The birth rate and death rate do not change the size and structure of the population drastically, while migration, may cause large scale changes in the size and structure of the population (Bhende and Kanitkar, 2003). The study of migration is of imperative significance because migration determines the size of the population, the growth of population and structure of population. Besides, migration has a significant value in determining the distribution of population and supply of labour force in the country. The study of migration is also useful for formulating economic and other policies by the government, economists, sociologists, politicians and planners along with demographers (Chandna, 2006).

Migration affects the place where people migrate and the place to which they migrate. Migrants have both positive and adverse effects on the society and economy (Datta, 2003). Migration studies have several administrative uses. The state also depends upon such studies for the provision of social services, health services and welfare of the people, continuance of law and so on. It is very much significant to know details of the migrant population to realize change in population and the positive or negative impact of such changes on the economy as well as human society (Adler et al., 2003).

The economic effects of migration vary in many ways. Sending countries may experience both short-term gains and losses but may stand for long-term gains. For countries, temporary programs can help address skills deficits but reduce domestic wages and add to the burden of public welfare. (Tripathi and Dash, 1997). The economic implications of migration in both sending and receiving countries depend on who is going, especially in relation to the skill level of migrant workers. (Kamble, 1983). The problem is not related with in-migration; it is mainly related with integration; especially in the labour market. If there are no works or trades, the segregation and housing problems are the main consequences (Bellampalli, 2019).

1.3 Statement of the Problem

Migration is studied in terms of the age of in-migrants and gender, as structural changes in the age of in-migrants and non-in-migrants can affect crude birth rate, crude death rate and labour force. (Chandna, 1991).

As per the 2011 census, Sikkim has lowest total numbers of population in India with a population of 610,577. Sikkim is one of the least densely populated Indian states. The population density of the state is only 86 persons per sq. km. However, its population growth rate averaged 12.36 percent between 2001 and 2011, which is quite higher (Census of India, 2011).

After 1975, when Sikkim became an integrated state of India and a huge number of resources were devoted to development, Sikkim's in-migration became even more significant. According to census data on migration, which primarily covers migration by place of birth and final residence, Sikkim recorded a very high level of in-migration that was 35% in 1981(Census of India, 1981) and it decreased by nearly 15% in 2011(Census of India, 2011). In-migration after 1975 has taken place mainly in the East and South districts of Sikkim through several entry points such as Rongpo, Jorethang, Malli, Nayabazar and Pedong (Census of India, 1981). In view of the above, these two districts have been selected for the study. Structure and socio-economic conditions of these migrant people play an important role in the population composition as well as developmental issues in Sikkim. The present study, therefore, seeks to examine the structure and socio-economic conditions of migrants in East and South districts of Sikkim and the impacts on their satisfaction level in particular. The proposed study regarding the structure and socio-economic conditions of migrants in Sikkim after 1975 has so far not been attempted. It is sincerely hoped that the same have filled up the gap for further research.

The migrant workers are too weak to revolt due to their poverty condition, illiteracy and ignorance while on the other hand, their employers are too strong and powerful to evade their obligation to exploit them. Of course, various legislative provisions exist to channelize the employment procedures, regularizing payments and working hours, preventing unfair deduction of wages, ensuring leaves, providing social security and so on. However, the perceived reality is completely different from our expectations. Several sources reveal that there are huge numbers of instances of denying the labour laws, especially for female workers (Roy, 2011).

Migrants are usually influenced by social disparity and may have a diverse range of experiences in the migration process (Davies et al., 2009) that reflect their physical, mental, social status. Therefore, it is necessary to study the perception of migrants so that migrants can have equal social value in the community. Over the last few decades, it has been observed that the number of migrants has increased significantly at the international level.

1.4 Area of study

Sikkim is located in the western-most part of the Eastern Himalayan realms within the great and the inner Himalayan region. In 1975 Sikkim was merged with Indian union as a constituent state. Sikkim lies between 27°4' to 28°7'48" North latitudes and between 88°00'58" to 88°55'25" East longitudes (Figure 1.1). The physical shape is somewhat rectangular about 113 km long and 64 km wide. It is squeezed between Nepal on the west and Bhutan on the east. On its south lies the famous hill station Darjeeling district of West Bengal and Tibet on its north (Gurung, 2011).

Sikkim is divided into four districts and nine sub-divisions. The East district has three sub-divisions and other three districts comprise two sub-divisions each. The rural areas of the whole state are divided into 163 Gram panchayat units and urban areas contain into 8 municipalities in three types which are Municipal Corporation (Gangtok), Municipal Council (Namchi), Nagar Panchayat (Singtam, Rangpo, Jorethang, Gyalsing Nayabazar and Mangan (Chhetri, 2010).

The state has a total area of 7096 sq. km which constitutes 0.22% of the total geographical area of India. The total population of Sikkim is 6,10,577 in 2011 (Census of India, 2011) which is just over .05% of the total population of India. According to Census of India, 2011 the population density of the state is 86 persons per Sq. Km. It is one of the least populous state in India and the second smallest in area. Gangtok is the capital and largest town of the state.

The East and South districts of Sikkim have been selected as an area of study. These two districts were selected on the basis of maximum numbers of migration that has taken place and recorded on the census reports published by Census of India (Census of India, 2011). These two districts have five sub-divisions. Gangtok, Pakyong and Rongli are the sub-divisions of East district and Namchi and Ravong are the sub-divisions of South district. Gangtok is the headquarter of the East district and Namchi is the headquarter of the South district.

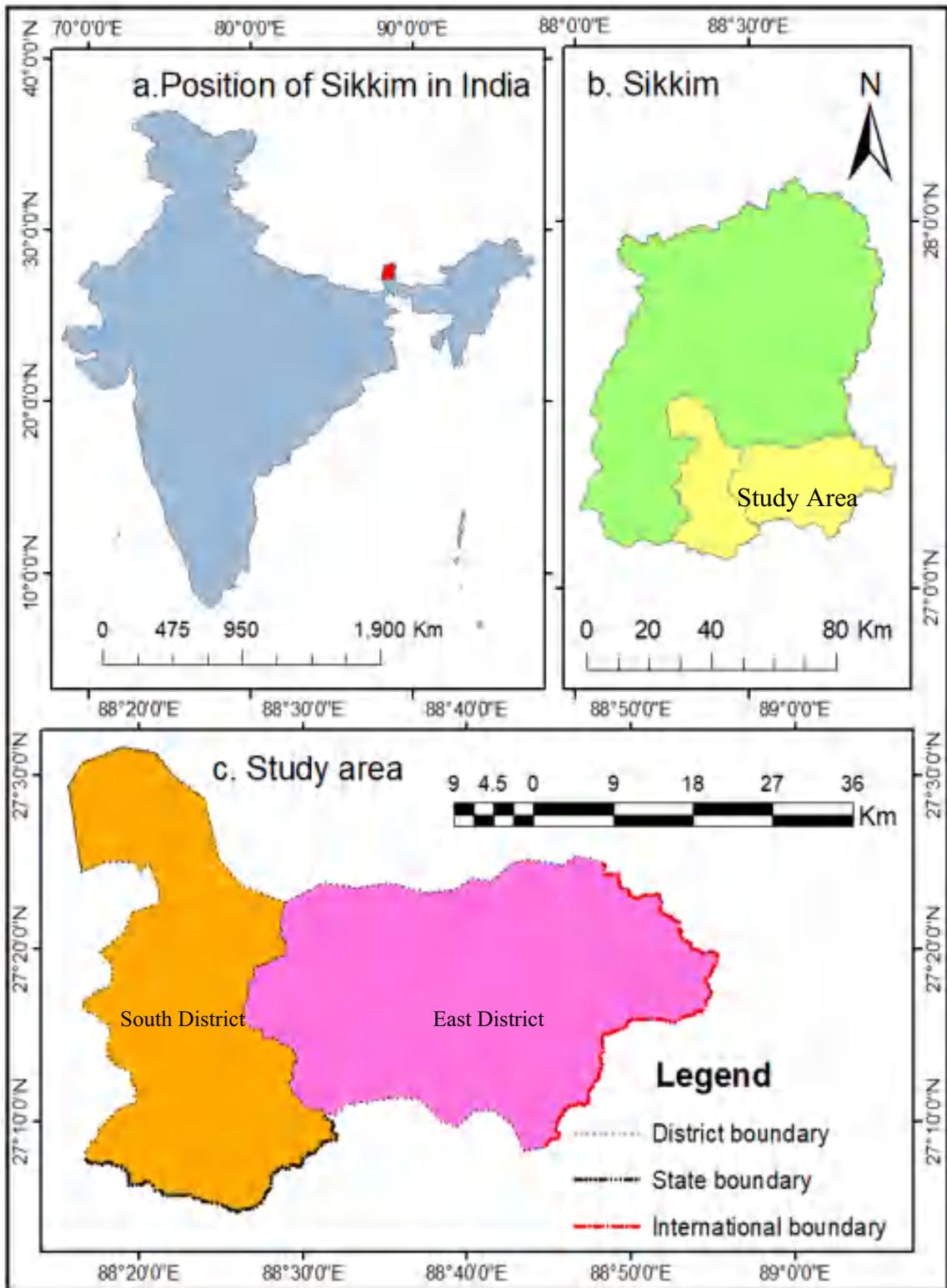


Figure: 1.1 Location map of the study area (a) India (b) Sikkim and (c) Study area (East and South districts)

The study area is bounded by the north district of Sikkim in the north; West district of Sikkim in the west; the state of West Bengal in the south and Tibet and Bhutan in the east. According to Census, 2011 total population of the study area is 430433, which is 70.50% of the total state population out of which 228102 are males and 202331 are females. The total area of the study area is 1704 sq. km. which constitute 24.01% of the total geographical area of the state. The density of the population of the study area is 253 persons per sq. km. The sex ratio of the study area is 888 females per thousand males. The study area has five urban centres, which are Gangtok, Singtham and Rongpo in the East district and Namchi and Jorethang in the South district. The study area has a total 271 numbers of villages (Census of India, 2011).

1.5 Review of Literature

In the study of population geography, the main theme is the analysis of growth, density and distribution of population along with migration and its impact on socio-economic and environmental changes and the relation with different geographical aspects like relief, vegetation, rivers, soil etc. In the review of literature many of the books, articles, theses and different web information in the field of population, as well as migration studies, have been taken into contemplation to judgment to understand the research gap in this field though there is substantial literature in this perspective.

- ❖ **Ackerman, (1959)** in his book entitled „*Geography and Demography*“ discusses that population geography is a recognized and organized branch of geography and its stress on man. Man is the heart of population study. In adding up to the insertion of men culture, economic activities and distribution over the earth at present or in the past, there exists a need for improved acceptance of spatial study of population.
- ❖ **Zelinsky, (1966)** in his book entitled „*A Prologue to Population Geography*“ describes that population is concerned with the uncomplicated account of the position of population statistics and quality. The geographical study of different phenomena of the population is interconnected with the different elements of geographical vicinity. He also discussed the population phenomenon that includes the dynamics of population distribution, density and growth, urban or rural setting, fertility, mortality, and migration; while structural characteristics

include age-sex composition, ethnicity, marital status, socio-economic composition, and religious activities of the people.

- ❖ **Trewartha, (1969)** in his book entitled „*A Geography of Population: World Pattern*“ deals with the geography of population and the different characteristics of the population. He defines that population geography is the study of human geography which is concerned with the spatial distribution on the earth surface. He argued that population and its characteristics are the key elements of geographical analysis and so, it is important for the understanding of regional differences.
- ❖ **Chandrasekhar, (1972)** in the book entitled „*Infant Mortality, Population Growth and Family Planning in India*“ deals with the population census and vital statistics in India, measurement, facts and rate of infant mortality in India and the World. He analyses the various inference of high and low infant mortality on the country’s major problems of population growth. He also recommended in his book that the functional decline in the infant mortality rate will give a lower birth rate through population policies and family planning.
- ❖ **Harrison, (1972)** in his book „*The Structure of Human Population*“ shows how national as well as international migration is gender and age selective. He discussed patterns of fertility and mortality, various mathematical models in demographic study, factors related to sex ratio and social mobility. He also discussed various population policies and their implications with family planning.
- ❖ **Sharma, (1975)** in his book entitled „*Population Trends, Resources and Environment*“ discussed the relation between population and other social aspects like resources, quality of life, education, environment etc. He points out that the creation of new resources and the rising of income and life expectancy, declining pollution, poverty and diseases are provided to human inference to lead to the future. He also points out that population changes have been constructive for all economic possessions including environmental limpidness as well as the standard of living.
- ❖ **Clarke, (1977)** in his book entitled „*Population Geography*“ describes that the geography of the relationship is related to the specific pattern of the problem. Discuss not only the specialties of distribution in distribution, but also the popularity of communication and the interaction with special interfaces in

specialties. Explain and analyse the relationship with the facts of physics, economics and culture. The distribution of the superficiality of the land, to the fact that the distribution of other natural resources, is intended. The distribution of public relations is related to communication, the economic and social aspects of life.

- ❖ **Garnier, (1978)** in his book entitled „*Geography of Population*“ deals with the study of geographers to illustrate the particulars in the current environmental framework and also their causes, features and probable effectiveness. In his book, the author shows that population geography is the study of geographic elucidation of demographic phenomena. These phenomena analyse the dimension and changes of population intensification and allocation of an area. He also considers that population geography has main three aspects e.g., the giving out of people over the earth, the consideration of human societies and level of achievement of the people.
- ❖ **Bhende and Kanitkar, (2003)** in their book entitled „*Principles of Population Studies*“ deals with the growth and distribution of population in the World and Indian perspectives; fertility, mortality and migration of population; population structure and characteristics and labour force of specific geographical areas. They considered that population analysis is limited to the study of population variability and the elements of change, where population studies are not only related to population variables, but also to the relationship between population change and other variables such as social, economic, political, biological, genetic and geographical.
- ❖ **Woods, (1979)** in his book „*Population Analysis in Geography*“ describes that social science has made contributions to the spatial and sequential pattern of population distribution. He analysed the main aspects of population geography like population distribution, components, growth and characteristics of human behaviour. He indicated that the central part of population studies is spatial variation in fertility, mortality and migration together. The book is significantly oriented towards the use of models in analysing human behaviour and attributes like fertility, mortality and migration.
- ❖ **Gosal, (1982)** in his book entitled „*Recent Population growth in India*“ deals with the population growth in India. The author described that also to irrigation facilities, retrieval of wastelands, development of different industries,

commercial activities and agriculture sectors are the result of the speedy increase of population in India. He also explains that population growth is mainly influenced by the insufficient education facilities and lack of women education in India.

- ❖ **Ghosh, (1985)** in his book „*Fundamentals of Population Geography*“ discussed not only the population distribution and characteristics but also its growth, pattern, fertility, mortality, mobility and migration. The author argued that population geography concerns the spatial analysis of population distribution and its characteristics. The population is related to other branches like demography, sociology, economics and other related disciplines of social science. He states that population density is the most fundamental demographic technique with which all other demographic aspects are interlinked directly or indirectly. He also states that population growth determines the population density distribution and structure and composition of the population.
- ❖ **Singh, (1986)** in his book „*Patterns of Rural-Urban Migration in India*“ describes the different prototype of national immigration and emigration in rural and urban areas in India. The author is concerned with the age-sex composition and marital status of migrants. His study on rural-urban areas concerns the rural poor, and a variety of fundamental factors of migration have surfaced in a different level of significance. The rising employment opportunities in growing cities motivate the migrants to engage in employment and other economic activity.
- ❖ **Saxena and Talwar, (1987)** in their edited book „*Recent Advances in the Techniques for Demographic Analysis*“ have discussed some multivariate and other quantitative techniques for demographic analysis like regression analysis, multiple classification analysis etc. They also analysed various techniques for fertility and mortality, including measurement of present fertility, trends in fertility and construction of life tables, estimation of infant mortality etc.
- ❖ **Jones, (1990)** in his book entitled „*Population Geography*“ describes the increasing patterns of fertility, mortality and migration, the spatio-temporal processes and their interaction expressed in population growth, problems and policies. He states that the population should imitate exercise courses in pageant with the recent trends in geography with stress on population dynamics. He

initiates a discussion in his book to reorganize the notoriety in population geography.

- ❖ **Ranade, (1990)** in his book entitled „*Population Dynamics in India*“ describes the different aspects of population dynamics in India. The author discussed the spatial distribution of population with regional differences of schedule caste and scheduled tribe population in India. He also discussed growth and spatial variation of rural population and analysed the migration pattern and urbanisation processes caused by the population changes.
- ❖ **Sawant, (1994)** in his book entitled „*Population Geography*“ indicates that a transport network is indispensable to know the density of population of a region. In his book he expressed that all the issues which demarcate population geography such as the study of people with their spatial distribution and density, increase or decrease in population numbers, movement and mobility of people, occupational structures, human settlements, etc. He states that density of population helps us to comprehend the nature of population distribution.
- ❖ **Krishnan, (1997)** in his report on „*Population Geography in India*“ covers of all important aspects of the geographical population of the people has not yet increased. Potential areas of research are identified as physical and social resources in India as urban pressure and indigenous peoples as Scheduled Castes and Scheduled Tribes of India.
- ❖ **Kayastha, (1998)** pointed out that the population provides the focus to all studies; it is central to environment and development. He argued that an integrated approach to the study of population, environment and development as a whole remains a significant area and geographical research and facilitates the investigation of interlinked studies. In his book entitled „*Geography of population,*“ he discussed the environmental perception and problems; population characteristics and problems of urban and rural development related to the migration pattern. He also analysed the poverty, economy and impacts of development associated with population changes.
- ❖ **Oderth, (2002)** in his book entitled „*An Introduction to the study of Human Migration: An interdisciplinary perspectives*“ deals with the source materials for migration studies and methods for description and analysis of migration data. He also discussed the expansion of migration over the earth and states the

causes and consequences of migration over a period of time in a particular region.

- ❖ **Jhingan, Bhatt and Desai, (2003)** in their book entitled „*Demography*“ deal with the theoretical discussion of the determining factors of population growth and also analyse the relationship between population growth and economic development. They consequently describe migration, its types and causes and urbanisation, its trends and problems. They pointed out that demography is to analyse the theoretical explanation regarding various changes in population.
- ❖ **Adler and Gielen, (2003)** in their edited book „*Migration: immigration and emigration in International perspective*“ deal with the pattern of human migration and psychological factors of immigration and emigration. This book also concerns the immigration and emigration which are related to the United States, migration in Columbia, migrants‘ families in Germany, migration processes in Poland, psychological adjustment and migration in Norway, migration from and to Japan, migration to Australia and the book also describes the migration in South Africa.
- ❖ **Datta, (2003)** in his book entitled „*Human Migration: A Social Phenomena*“ opines that human migration is one of the most important aspects of social science. He argued that the migration process had been an important factor in the area of development and changes in present-day society. It is a complex process and is indicative of basic social and economic changes. In his book, he discussed a brief description of North Bengal and also described the study of forest villages and artisans‘ colonies in North Bengal.
- ❖ **Husain, (2004)** in his book „*Human Geography*“ points out that the causes of migration may be due to a variety of factors and these may range from natural calamities, climatic change, epidemics, drought to social, economic, cultural and political aspects. He emphasizes that the role of overpopulation and heavy stress on resources may be the causes of stable or momentary migration and also rural or urban relocation.
- ❖ **Hassan, (2005)** in his book entitled „*Population Geography*“ deals with the spatial analysis of the components of population changes and its attributes. In addition, with this interrelationship between population growth and food supply and environmental quality has also been described. He pointed out that population geography, as an independent subfield of human geography.

- ❖ **Chandna, (2006)** in his book „*Geography of Population*“ analyses the study of population and distribution pattern of India’s population. He points out the conceptual framework and historical development of population studies. He discussed spatial disparities in the population distribution and also highlights population characteristics, changes, and structure. He also discussed the migration of population studies along with a certain weakness in respect to population studies. The author also describes density and distribution of population and different demographic momentum.
- ❖ **Mukhrjee, (2006)** in his book entitled „*Migration and Urban Decay: Asian experiences*“ describes the crucial urban crisis and decay in Asia, due to extensive migration, urban explosion and overstrained urban services. This book deals with the massive poverty-induced migration and spatial-economic-political processes behind such migration and urban decay in developing countries.
- ❖ **Singh, (2006)** in his edited book entitled „*Population Geography*“ described that population spatial distribution is significantly important because man has brought significant changes over the earth surface. He also analyses the population redistribution through international and internal migration and its existing trends. He was concerned with the structure of socio-spatial distribution of population as well as migrant population in a particular area or in a specific country.
- ❖ **Mandal, Uyanga and Prasad, (2007)** in their book entitled „*Introductory Methods in Population Analysis*“ stated that statistics are essential to show the evolution of population over time and space. According to the international treaty, the census is a specific time count of the people at a particular time and the specific characteristics of each person. i. e. Information on the number of persons in each subdivision of each region, such as age, gender and marital status, shows the geographical distribution of the population. Demographic geography is a newly developed branch of geography. As the population of time and space grows, today the world's population explosion is adding millions of people every year. Not only sound education but his alertness and dedication too are most required.
- ❖ **Kundu, Amitabh and Niranjana, (2007)** in the article titled „*Migration, Employment Status and Poverty*“ analyse the outline of both male and female

migration in urban areas and its socio-economic relationship and also consider the different causes of urban immigration and recommend that the possibility amongst the migrants compared to the local population in all dimension of different urban areas.

- ❖ **Tripathi, (2008)** in his book entitled „*Population Geography*“ describes the socio-economic profile of the Scheduled Caste population in India. He discussed that there is an increase in urban Scheduled Caste population due to the industrialisation and modernization. It has been found that the decadal growth rate of scheduled caste has been more than that of the general population. He also discussed the different structure and composition of the Scheduled Caste population in India.
- ❖ **Doniwal, (2008)** argued in his book entitled „*Population Geography*“ deals with the demographic transition of population including fertility transition; population growth in India; population structure and composition; fertility and mortality; causes and consequences of international migration; health status, poverty and environment of population and also discussed different challenges, social development and security of demographic phenomenon.
- ❖ **Verma, (2008)** in his book entitled „*Human Geography*“ concentrates on the field of human geography within its folds such fields as cultural, population, historical, political, economic and urban geography. The book explores this field in detail, discussing its sub-fields, the range and scopes, the techniques and methodology of the study, the contemporary relevance of the field, as well as what it holds for the future.
- ❖ **Chandra, (2008)** in his book entitled „*Population Challenge and World Crisis*“ describes the pattern and distribution of World population. The author also discussed positive and negative growth rates of population in different parts of the World and population dynamics in different parts of the World. He pointed out the recent trends in World population, World population crisis, World population challenges including contemporary population challenges and also discussed the biological evolution of population and population genetics in brief.
- ❖ **Anwaruzzaman, (2009)** in the article entitled „*Immigration in Jalpaiguri, West Bengal: Nature, Trends and Consequences*“ show how the region attracts migrants from both national and international areas. The researcher indicates

that the district has 7 stages of immigration ranging from colonial period to post Pakistan-Bangladesh war in 1971. These stages comprised refugees of Tibet and Bangladesh; emigrants from Assam, Nepal and Bhutan. He said that the economic prosperity along tea gardens, transport facilities, fertile land and low rate of living standard are the major reasons for immigration in the district. He also shows that the uncontrolled immigration in the district has destroyed the natural environment and depleted biodiversity at an alarming rate. The immigration has also resulted in the formation of movements of different social immigrant groups for their rights on land and resources.

- ❖ **Newbold, (2010)** in his book entitled „*Population Geography: Tools and Issues*“ discussed population aspects such as fertility, mortality and migration. He argued that how population growth is concerned with economic development, resource scarcity and food security. He also attempts for efficient tools for relating and measuring population processes, population data and population composition. He focuses on detailed features of population as well as population geographical research.
- ❖ **Samers, (2010)** in his book entitled „*Migration*“ describes the geography of migration in the world and the migration across the international borders. He also points out that the geopolitical economy of migration control and citizenship belonging to migration. He discussed the theories, concepts and issues concerning migration and immigration. He argued that in the context of migration, spatially-explicit concepts like transnationalism need more gradation.
- ❖ **Rajan, (2010)** in his edited book „*Migration, Identity and Conflict: India Migration Report*“ describes the internal migration of India including rural and urban migration with district-level analysis. In this book magnitudes of migration in the north-east Indian region also are discussed. The book concerns the political conflicts related to migration and discusses the relation between migration with caste, ethnicity, employment and gender issues in India.
- ❖ **Paul, (2011)** in her book entitled „*A Handbook of Demography*“ examines the fundamentals of population phenomena. This book deals with population growth and its factors, the role of population in economic development, theoretical perspectives and general concepts of demography. She also describes the different structure and composition of the population, different measures of demography and different theoretical orientation of population.

- ❖ **Singh, (2011)** in her edited book „*Human Geography: Concept and Issues*“ describes different conceptual views on human geography including population, behaviour, cultural ecology, politics, health, food, environment, region, economy, feminism concept in human geography and many other attributes related to human geography. She also deals with the urban and rural geographical attributes of population and its impact on economy and society. Editor especially discusses the concept and issues related to human migration. In her book, she pointed out the pre-modern and modern migration, migration and its relation to the climate cycle. Singh has discussed different causes of migration including push and pull factors such as emigration, immigration, free migration, great migration, illegal migration, migration pattern in India in modern period and many other theoretical views on migration in her book.
- ❖ **Sharma, (2012)** in his book entitled „*Population and Society*“ deals with the sociological theories of population and sociological concepts relevant to the study of population. He pointed out that the study of the population has complied with different disciplines like sociology, economics, psychology, geography, mathematics and so many other disciplines.
- ❖ **Singh, (2012)** argued that geography is the study of features of earth's surface including their spatial distribution and its interaction with man. He said that human geography is the synthetic study of the relationship between human societies and the environment and it's also the study of man's reciprocal relationship with his environment. In his book entitled „*A Text Book on Human Geography*,“ he describes the approaches to the study of human geography, the primitive lifestyle of mankind and subsequently migration; spatial distribution of mankind and human adaptation to the environment and also discussed the economic activities of mankind.
- ❖ **Dasgupta, (2012)** in his book entitled „*Social Demography*“ social population parameters are very nicely defined to include the relationship of population to society, population policy, social institutions, social factors influencing public change, social change, population policy and population problems and solutions. He also describes migration, its concept, factors, different models regarding migration, different types of migration and describes the various social, biological and economic consequences of migration.

- ❖ **Qazi and Qazi, (2013)** in their book entitled „*Population Geography*“ described the different concept of population geography, distribution and density of population in the World with the factors affecting the population distribution including geographical, cultural and demographic factors. They also pointed out the spatial movement of the population including classification, forces, volume and consequences of migration and the characteristics of migrants. They also discussed the growth of population including birth and death rates, pattern of population composition including age structure, sex composition, racial and ethnic composition, religious composition, linguistic composition, educational composition etc. In their book, they described the rural-urban composition of population, economical traits of population, relationship between population and resources and emphasized geographical overview of World population.

1.5.1 Review of Literature on Sikkim

- ❖ **Risley, (1894)** „*The Gazetteer of Sikkim*“; is one of the oldest books on Sikkim. Which deals with all the aspects of society, culture, a religious custom, demographic structure, political development, flora and fauna, etc. of Sikkim? To some extent, his writing also helps to provide some precious information about population data especially in and out-migration of Sikkim.
- ❖ **Bhattacharyya, (1984)** in his book entitled „*Aspect of Cultural History of Sikkim*“ described the historical background, geographical features, demographic structure, culture and social way of life of the people of Sikkim. He shows that Lepchas were initially the only inhabitants of Sikkim. Along with the Lepchas, the population of Sikkim is largely composed of Bhutias and Nepali. Most of the Bhutias settled in Sikkim are immigrants from Tibet and Bhutan during the 17th century. He points out that the Nepali immigrants now far outnumber the Bhutias or the Lepchas.
- ❖ **Barua, (1987)** in her article entitled „*Migration and Human Settlements in the Rangit Basin (Sikkim-Darjeeling Himalaya)*“ discussed migrants‘ population who move for better opportunities. She states that the Rangit basin in the Sikkim-Darjeeling Himalaya is composed of three primary ethnic groups namely Lepchas, Bhutias and Nepali. Though Lepchas are indigenous people in this area, due to intensive immigration from Tibet and Nepal, nowadays

Lepchas are a minority in the region. Excessive Nepali immigration created a Diasporas situation, by which Nepali are the dominant community in the basin.

- ❖ **Boot, (1991)** in the article entitled “*Migration Pattern in the Urban Areas of Sikkim*” describes migration patterns in the urban areas of Sikkim in detail. He states that urban population structure of Sikkim mainly depends on this migration process and migration is chief influencing factors for the spatial variation of urban population in the urban areas of Sikkim. He argued that present urban population structure increases the total population with a complex population structure in the urban areas of Sikkim. He examines that after 1975 when Sikkim was merged with India as a constituent state, migration occurred due to employment for male and marriage for females from the different neighbouring states of India like West Bengal, Bihar, Assam, Uttar Pradesh etc. He points out that small towns like ‘_Nagar Panchayat’ are the result of these immigration activities.
- ❖ **Sharma, (1991)** in the article entitled “*Migration and Distribution of Plainsmen in Sikkim* ” gives a detailed account about the spatial distribution of the migrant plainsmen in Sikkim and reasons for their migration. He classifies the ethnic group of Sikkim into two distinct categories; one is migrated and another is non-migrated. The Lepchas are considered as the indigenous people of Sikkim and others considered as migrants. The migrants in Sikkim include Bhutia, Nepali and Plainsmen like ‘_Marrwaris’, ‘_Bharis’, ‘_Bengalees’ who migrated from the plains of India after 1975. He states that the migrated Plainsmen are not only found in the major towns of Sikkim but also in the small towns and in the rural areas of Sikkim too.
- ❖ **Lama, (1994)** in his edited book „*Sikkim: Society, Polity, Economy, Environment*” describes the Bhutia-Lepcha women in Sikkim, occupational structure of plainsmen in Sikkim and ethnicity and resource management. He also discussed agriculture, energy consumption, development of tourism and the geo-ecological system of Sikkim. He opines that the Sikkim has potential population resources for the developmental strategies.
- ❖ **Datta, (1997)** in her article entitled „*Inter-Ethnic Relations in Sikkim in Historical Perspective*” describes the demographic profile of the different ethnic groups of Sikkim including the Lepcha, Bhutia and Nepalis of Sikkim. She also gives the statistical analysis of the population of Sikkim with the study of

Sikkim Census Report from 1891 to 1991. She shows how the population of non-tribal groups progressively increased with successive years and they became dominant in the population structure of Sikkim.

- ❖ **Mondal, (2000)** in the article entitled „*Muslims of Sikkim*“ argued that Muslims constitute a small cultural minority in Sikkim and they are unevenly distributed over the state. He said that the Muslims community constitute the fourth religious group after Hindus, Buddhists and Christians. He gives a detailed account about Muslim population of Sikkim and their socio-cultural profile. He also discussed history, economy and society of Muslims as well as their interactions with the Sikkimese society.
- ❖ **Poddar, (2001)** in the article entitled „*Population Dynamics of Sikkim: An observation from Census 2001*“ gives a brief account of the structure and dynamics of the population in Sikkim. He also discusses the Schedule Caste and Scheduled Tribe population distribution in all the districts of Sikkim, male-female ratio in the rural and urban areas and decadal variation of population in Sikkim and also discussed the population density distribution, literacy and other issues in the State.
- ❖ **Gulia, (2005)** in his book entitled „*Human Ecology of Sikkim*“ describes the terrain profile and geographical mosaic of Sikkim. He analyses the realms of spiritual ecology in the upper Rangit basin and also discusses the different aspects of cultural ecology of the upper Rangit basin. He highlights the human ecology of eco-tourism in the upper Rangit basin.
- ❖ **Choudhury, (2006)** in her book entitled „*Sikkim: Geographical Perspectives*“ discussed a detailed account of Sikkim about physical set up, demographic structure, ethnicity culture, urbanization, tourism, economic infrastructure etc. She also discussed the human growth in Sikkim in respect of education, health and employment opportunities. The main features of this book are the socio-economic condition and lifestyle of the people of Sikkim.
- ❖ **Subba, (2009)** in his edited book „*Mythology of the People of Sikkim*“ describes the mythological structure of different ethnic community living in Sikkim like Christians, Buddhist, Islam and others. He attempts to analyse the linkage between different religion groups of Sikkim and their livelihood. He also deals with the spiritual activities among the different ethnic groups in Sikkim.

1.6 Rationality of the study

A lot of research works have been done in different areas of the population. It is clear from the review of literature and other related studies that enough research work has not been done on different issues of migrant population of Sikkim such as population growth, density, distribution, sex ratio, literacy, occupational structure, fertility, mortality, etc. Major studies have however been attempted on population characteristics of the state only. But no study has yet been done on the migrant population of the state. The present work has primarily been a modest attempt to focus on the problems related to migration. The study has covered the population structure of migrants and their socio-economic conditions which have a definite impact on the social and economic changes of Sikkim from a geographical perspective. This research work will help in finding viable solutions for the problems of development in the state.

1.7 Research Objectives

The present study has the following objectives –

1. To analyse the factors and pattern of the migrant population after 1975 in the study area.
2. To measure the structure and composition of the migrant population in the study area.
3. To evaluate the socio-economic conditions of the migrant people in the study area.
4. To analyse the satisfaction levels of the in-migrants in the study area.

1.8 Hypotheses

The present study tries to assert the truth or falsity of the following research hypotheses:

1. There is no significant mean difference between Social status and economic status of in-migrants in the area of destination.
2. The socio-economic status of migrants is not dependent on demographic characteristics in the area of destination.
3. There is no significant relationship in satisfaction levels of in-migrants in the area of destination.
4. The satisfaction level of in-migrants is not dependent on demographic characteristics in the area of destination.

1.9 Database and Methodology

The researcher has adopted some methodologies for the present study to justify the objectives of the study and for the testing of the hypotheses mentioned above. The present study is rationalistic one, which is based on both qualitative and quantitative methods depending upon both primary and secondary data sources.

1.9.1 Sources of data

Both qualitative and quantitative data and information have been collected from different primary and secondary sources and also have been analysed, examined and represented both graphically and statistically.

1.9.1.1 Secondary Sources of data

The present chapter is mainly based on secondary data, which have been collected from the different websites and reports published by the different departments of Government of Sikkim and Government of India. Physiographic and drainage maps have been prepared from DEM, downloaded from United States Geological Society (<https://earthexplorer.usgs.gov/>). Geology and rocks and minerals were collected from the Geological Survey of India, Sikkim division. The road transport network of the study area was digitized from Google Earth. Soil map was collected from the National resource Atlas of Sikkim. Vegetation cover map has been prepared using NDVI from Landsat 8. ArcGIS 10.3 and Global mapper 25 have been used.

Socio-cultural attributes such as population, decadal changes, density, distribution of scheduled caste and scheduled tribe population, sex ratio, literacy rate, distribution of workers and non-workers were collected from the report on District census handbook, 2011 (Census of India, 2011) and Department of Economics, Monitoring and Evaluation, Government of Sikkim (DESME, Govt. of Sikkim, 2018). Health related data were collected from the website of the Department of Health, Government of Sikkim (Govt. of Sikkim, 2018). Land use pattern of Sikkim has been collected from Human development report, 2001 (Govt. of Sikkim, 2013) and statistical profile of Sikkim, 2006-07 (DESME, 2018). Distribution of minerals was collected from the report published by the G.S.I. of Sikkim (ENVIS, 2018). Cropping pattern, district-wise agricultural area, production and yield has been collected from Department of food security and agriculture development department, Government of Sikkim (Govt. of Sikkim, 2018). The large, small and micro industries related data have been collected from the annual reports, published by the Ministry of MSME,

Government of Sikkim (DCMSME, 2018). The energy production and distribution were collected from the Sikkim energy and power department, Government of Sikkim (ENVIS, 2018). Data regarding the numbers of domestic and foreign tourists visited the state during 2011-2017 has been collected from the Tourism and civil aviation department, Government of Sikkim (Department of Tourism, Govt. of Sikkim, 2018). The suitable statistical techniques have been used in SPSS 26.

1.9.1.2 Primary sources of data

Primary data has also been used to conduct this study. These data were collected through a household survey with the help of a structured questionnaire (Appendix A) during November, 2017 to April 2018. A stratified random sampling design without replacement based on strata of urban and rural areas was adopted for the household survey and a significant number of 340 migrants (a total 190 households were selected from the East district of Sikkim and a total 150 households were selected from the South district of Sikkim) households were interviewed. Key informant interviews and non-participant observation techniques were used to measure the socio-economic conditions and perception of the level of satisfaction (qualitative data) of migrants. A pilot survey was conducted in the study area before the finalization of the structured questionnaire.

1.9.1.3 Sample design

Sample respondents among the migrants of the area for this study are belonging to the age group 18 to 60 years which have been considered as the working population. Among the four districts of Sikkim two districts namely East and South districts have been selected as an area of study. These two districts were selected on the basis of maximum numbers of migration in a particular time period that has taken place and recorded in the census reports published by Census of India. These two districts have five sub-divisions. Gangtok, Pakyong and Rongli are the sub-divisions of East district and Namchi and Ravong are the sub-divisions of South district. All five sub-divisions were selected for the collection of sample respondents to conduct this study. From these five sub-divisions, 5 urban areas and 4 rural areas have been chosen using the stratified random sample based on the maximum number of in-migrants recorded in the census report. From the East district, 3 urban areas namely; Gangtok, Singtham and Rongpo have been chosen, whereas, from the South district, 2 urban areas namely, Namchi and Jorhang have been chosen for the collection of sample data of migrants. Other than

these urban areas, 2 rural areas from each district have been chosen, which are Pakyong and Rongli from East district and Ravangla and Sumbuk from South district. The sample respondents among the migrants of the study area have been marked out with the help of Stratified random without replacement along with Non-proportional in numbers, which is based on migrants' workplace i.e., urban and Rural.

The last unit of the sample design has been considered a computer based random table. Primary data were collected from 340 migrants' respondents of East and South districts of Sikkim. As many as 190 samples were collected from the East district and 150 samples were collected from the South district.

Table 1.1 Model of Sample design

District	Sub-divisions	C.D. Block	Area category	Number of samples
East District	Gangtok	Gangtok	Urabn	50
		Singtham	Urabn	40
		Rongpo	Urabn	40
	Pakyong	Pakyong	Rural	30
	Rongli	Rongli	Rural	30
South District	Namchi	Namchi	Urabn	50
		Jorethang	Urabn	40
		Sambuk	Rural	30
	Ravong	Ravangla	Rural	30
Total No. of samples = 340				

1.9.1.4 Sample Size

The sample is the subgroup of the population (Sekaran & Bougie, 2010). Theoretically, there are various methods for determining the sample size in social science for a particular area. For measuring the sample size, five respondents have been selected per parameter to be analysed as lower limit (Hair et al., 2010), but most of the scholars accepted that the proportion among the respondents and parameter should be 10:1 (Schreiber et al., 2006). In other methods regarding measuring of the sample size it has been observed that the sample sizes of not less than 30 and not more than 500 are appropriate for the study (Roscoe, 1975).

However, for the present study, the sample size according to the parameter-based method, has been selected. Thus, the parameters of the study have been categorized into two categories, which are i) Parameters for Socio-economic conditions of the migrants and ii) parameters for level of satisfaction of the migrants. These parameters are listed below:

Table 1.2 List of parameters for the study

Socio-economic Conditions		Level of Satisfaction			
Sl. No.	Parameters	Sl. No.	Parameters	Sl. No.	Parameters
1	Health	7	Job	13	Calmness
2	Education	8	Remittance	14	Blueness
3	Demography	9	Savings	15	Cheerless
4	Income	10	Health	16	Nervousness
5	Savings	11	Sleep	17	Adaptation
6	Loan	12	Happiness	18	Willingness

There are 18 parameters that have been chosen for the study. According to parameter-based methods, the appropriate proportion for the sample respondents as per parameter is 10:1 ratio (10 respondents for one parameter). But the parameter-based method for determining sample size is not universally accepted as the number of respondents is the proportionate to the number of parameters.

Therefore, a more appropriate method for determining the sample size for the study has been considered here. This method is known as precision at 95% Confidence Interval (CI). This method can be analysed in two ways, which are i) one-tailed test and ii) two-tailed test. These two methods are also categorized a) known population size and b) unknown population size (Almeda et al., 2010). Here the researcher has considered the population size of the total migrant population in the study area as unknown. It is because the figure relating to the total migrant population in the study area was obtained from the field survey conducted during the year 2017-2018. However, the present study does not relate to the Census report in the year 2011 which reveals the total migrants' population in the study area.

Based on the precision-based method for two-tailed of unknown population size (Cochran, 1963) researcher considered the sample size for the present study. According

to W.G. Cochran Precision method for determining the sample of the study is formulated as:

For the two-tailed test of unknown population size

$$n = \frac{z^2 pq}{e^2} \dots\dots\dots 1.1$$

Where, n = Sample size

z = z value found in the z table at a given confidence level

p = estimated proportion of an attribute that is present in the population

q = 1 – p

e = desired level of precision

$$n = \frac{1.96^2 \times 0.33 \times 0.67}{0.05^2} \dots\dots\dots 1.2$$

= 339.75 (Minimum sample size =340)

As regards the minimum number of sample villages to be covered under the study, among all the observations pertaining to a variable, lowest prevalence was anticipated as 40%. Accordingly taking into account 33% relative precision, required minimum sample size came to be 340 at 95% level of confidence. These 340 samples give a N/n ratio of 0.1 as n i.e., total number of in-migrants‘ households are estimated to be more than 3400. So, for individual village level 10 percent of total households were surveyed. The respondents were randomly chosen using the random walk principle. Since the East district of the state is more populous in terms of total population and total migrants than the South district of the state and East district has three sub-divisions along with four urban centres, South district has two sub-divisions along with two urban centres. Therefore 190 sample respondents were collected from the East district of the state and 150 sample respondents were collected from the South district of the state. Sample size for the study has been collected on the basis of strata. These strata are mainly based on variables of workplace and residence i.e., urban or rural.

1.9.2 Tools and Techniques

The data and information have been processed and represented with various tools and techniques. Different methods have been used for the study. The migration rate of the study area has been measured by the Migration rate method, (Jhingan et al., 2003), in migration rate method, out migration rate method, net migration rate method and gross migration rate method (Srivastava and Srivastava, 2004). Data on structure

and socio-economic conditions of the in-migrant population of the study area have been analyzed with the help of various statistical tools and indices. Different cartographic techniques have been used for the present study. Statistical Package for the Social Sciences (SPSS version 26.0) has been used for the analysis of statistical data, ArcGIS software version 10.3 has been used for the preparation of different maps to fulfil the present study.

To find out the distribution tendency of Schedule Caste and Scheduled Tribe population of Sikkim, distribution of workers (main and marginal) and non-workers of Sikkim and the study area, categories of workers of the study area and Sikkim state following formula has been used.

$$\frac{\text{Part population}}{\text{Total Population}} \times 100 \dots \dots \dots 1.3$$

1.9.2.1 Decadal changes

To find out decadal changes of population of the study area and Sikkim state, formula for decadal variation has been used by using the total population of the present decade and past decade (Srivastava and Srivastava, 2004).

$$Di = \frac{Pi - P}{P} \times 100 \dots \dots \dots 1.4$$

- Where, Di = Decadal variation of population
- Pi = Total population of present decade
- P = Total population of past decade

1.9.2.2 Literacy rate

To find out literacy rate, there are two methods or indices of literacy such as i) Crude literacy rate and ii) Effective literacy rate. Both have been used in measuring the level of literacy (Maurya, 2014):

To find out the Crude literacy rate (CLR) following formula has been used.

$$CLR = \frac{\text{Literate population}}{\text{Total population}} \times 100 \dots \dots \dots 1.5$$

Here effective literacy rate is used to find out the level of literacy of the state and the study area, where children upto the age of 7 years is not included in the total population of the area. Effective literacy rate is calculated by the following formula:

$$\text{Effective Literacy Rate} = \frac{\text{Number of literates}}{\text{Total population above 7 years of age}} \times 100 \dots \dots 1.6$$

1.9.2.3 Health

For the discussion of health conditions of the study area as well as the state of Sikkim, availability of health institutions, availability of beds in the health institutions and availability of doctors in the area have been taken into consideration. The following formula is adopted to find out the availability of health institutions, availability of beds in the health institutions and availability of doctors per 10000 thousand population of the area.

$$\text{Health} \frac{\text{institutions}}{10000} \text{population} = \frac{\text{Total number of health institutions}}{\text{Total population}} \times 10000 \dots\dots 1.7$$

$$\text{Beds}/1000 \text{ population} = \frac{\text{Total number of beds in health institutions}}{\text{Total population}} \times 10000 \dots\dots 1.8$$

$$\text{Number of doctors}/10000 \text{ population} = \frac{\text{Total number doctors}}{\text{Total population}} \times 10000 \dots\dots 1.9$$

1.9.2.4 Crop combination

Crop combination of the East and South districts of Sikkim has been prepared with the help of statistical technique used by Weaver in 1954. Total harvested land occupied by each crop in the area is taken into consideration. The actual percentage of area under each crop, which occupies more than 1 percent of the total cropping area has been computed to determine the crop combination of the study area (Weaver, 1954). The theoretical measurement for the crop combination was employed as follows:

- Monoculture = 100 percent of the total cropland for one crop
- Two crop combination = 50 percent in each crop for two crops
- Three crop combination = 33.33 percent in each crop for three crops
- Four crop combination = 25 percent in each crop for four crops
- Five crop combination = 20 percent in each crop for five crops

After the calculation of the combination of crops, determining the minimum value of the crop combination using the method of standard deviation (SD) as follows (Weaver, 1954):

$$SD = \frac{\sum d^2}{n} \dots\dots\dots 1.10$$

Where, d = Difference between the percentage of theoretical value and percentage of actual harvested area of cropland

n = total number of crops in a given combination

1.9.2.5 Annual growth rate

The annual growth rate of domestic and foreign tourists is taken into consideration to determine the aspects of tourism in Sikkim, which is one of the main bases of the state's economy. The annual growth rate of tourists during 2011-2017 is calculated by the following formula (Srivastava and Srivastava, 2004):

$$G_i = \frac{T_i - T}{T} \times 100 \dots\dots\dots 1.11$$

Where, G_i = Annual growth rate of tourists

T_i = Total tourists visited in the present year

T = Total tourists visited in last year

1.9.2.6 In Migration Rate (IMR) Method

In migration rate has been measured by the following formula (Srivastava and Srivastava, 2004):

$$IR = \frac{IM_n}{P_n} \times 1000 \dots\dots\dots 1.12$$

Where, IR = In migration rate

IM_n = *The number of in – migrants to an area in given year*

P_n = *Mid year population in the area*

1.9.2.7 Out Migration Rate (OMR) method

Out-migration rate has been measured by the following formula (Srivastava and Srivastava, 2004)::

$$OR = \frac{OM_n}{P_n} \times 1000 \dots\dots\dots 1.13$$

Where, OR = Out migration rate

OM_n = *The number of in – migrants to an area in a given year*

P_n = *Mid year population in the area*

1.9.2.8 Net Migration Rate (NMR) method

Net migration rate has been measured by the following formula (Srivastava and Srivastava, 2004):

$$NMR = \frac{IM - OM}{P_n} \times 1000 \dots\dots\dots 1.14$$

Where NMR = Net migration rate

IM = Number of in-migrants in a particular year

OM = Number of Out-migrants in a particular year

P_n = Mid year population in the area

1.9.2.9 Gross Migration Rate (GMR) method

Gross migration rate has been measured by the following formula (Srivastava and Srivastava, 2004):

$$GMR = \frac{IM + OM}{P_n} \times 1000 \dots \dots \dots 1.15$$

Where, GMR = Gross migration rate

IM = Number of in-migrants in a particular year

OM = Number of Out-migrants in a particular year

P_n = Mid year population in the area

1.9.2.10 Socioeconomic Index (SEI):

The index used to calculate the socio-economic status is called socioeconomic index. A socio-economic index is the aggregate result of social index and economic index (Maity et al., 2014). The socio-economic index is to be developed by the following formula (Maity et al., 2014):

$$Socio\ economic\ index\ (SEI) \left(\frac{1}{2} \times Social\ Index \right) + \left(\frac{1}{2} \times Economic\ Index \right) \dots \dots \dots 1.16$$

1.9.2.11 Social Index (SI):

The social indicator is influenced by factors that affect the social position of the individual or family such as health factor, demographic factor and educational factor. So, the social index is the summing up of the health index, demographic index and educational index. Socio index is to be developed by the following formula (Maity et al., 2014):

$$Social\ Index\ (SI) = \left(\frac{1}{3} \times Health\ Index \right) + \left(\frac{1}{3} \times Educational\ Index \right) + \left(\frac{1}{3} \times Demographic\ Index \right) \dots \dots \dots 1.17$$

1.9.2.12 Health Index (HI):

Health status is investigated by using a self-developed dimension index, called Health Index. To keep this in mind, five important variables were considered for constructing the health index. The outcomes of the variables are binary. Variables with their

category and codes are considered for preparing health index that is given below (Maity et al., 2014):

Table 1.3 Health-Related Variable with their Category and Code

Variables	Category	Code	Category	Code
Drinking water facility	Yes	1	No	0
Sanitation facility	Yes	1	No	0
Garbage facility	Yes	1	No	0
Sewerage facility	Yes	1	No	0
Health insurance facility	Yes	1	No	0

After getting the values for those variables, health index can be constructed using the following formula:

$$\text{Health Index (HI)} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \dots\dots\dots 1.18$$

1.9.2.13 Education Index:

Educational status is measured by using the literacy status measured in terms of years of schooling attained by the respondents. For those respondents who do not attain school or any other kind of formal training on education, are given a score ‘0’ and for others assign a score according to their years spent in school with a minimum score of one year. To create the Education Index, first respondents ‘educations are categorized based on their highest academic achievement. The value is assigned to 6 sections ranged 0-16 (Maity et al., 2014).

Table 1.4 Educational Category and Code

Category	Code
No formal education	0
Primary education	5
High school education	10
Technical Education	13
Graduation	15
Professional education	16

The following formula was used to construct the educational index of the respondent from their values generated from the education level.

$$\text{Educational Index (EDI)} = \frac{\text{Actual years of schooling of the respondents}}{\text{Maximum years of schooling}} \dots\dots 1.19$$

1.9.2.14 Demographic Index (DI):

A demographic index developed on the basis of family size of the respondents. Family size indicates the total number of family members in an individual household.

The following formula was used to construct the demographic index of the respondent from their size of the family (Maity et al., 2014).

$$\text{Demographic Index (DI)} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \dots \dots \dots 1.20$$

1.9.2.15 Economic Index (EI):

For determining the Economic Status of migrants of the East and South districts of Sikkim a Dimension Index has been framed up where savings by the earners and loan borrowers among the migrants have been considered with the monthly income instead of respondents' individual income to avoid the biasness because all the respondents of the study area are not living in the same livelihood although, they have same monthly income. In the study area, it is also observed that migrants' economic status is below average and they do not enjoy a far higher standard of living due to savings of money and getting loans for family members of households. That is why it is decided to make savings and loans along with monthly income of the respondents (Maity et al., 2014).

Table 1.5 Economic Variables with Category and Code

Variables	Category	Code
Savings	Yes	1
	No	0
Loan	Yes	0
	No	1

1.9.2.16 Income Index (INI):

Income index of the present study is purely based on the monthly income of the migrants in the study area. Highest and lowest monthly income of the respondents vary between Rs. 100000/- and Rs. 2000/- respectively. Following formula used to develop income index (Maity et al., 2014):

$$\text{Income Index (INI)} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \dots \dots \dots 1.21$$

After getting the income index value, it summing up with the binary value of savings and loan. For the construct the economic index this summing up values of individual respondents is calculated by the following formula:

$$\text{Economic Index (EI)} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \dots \dots \dots 1.22$$

1.9.2.17 Likert scale

American psychologist Likert formulated the method of attitude measurement in 1932. He argued that the attitude of a person varies along a dimension from negative to positive. He stated the five-point scale to measure attitude, which is a quality data of behaviour of human beings. This five-point scale is carried out with following manner:

Table 1.6 Five-point scales postulated by Likert, 1932

1	Strongly disagree	More Negative
2	Disagree	Negative
3	Undecided	Neutral
4	Agree	Positive
5	Strongly agree	More Positive

Source: Based on Lensis Likert, 1932

Level of satisfaction of the migrants in the study area has been measured with the help of Likert’s five-point scale. It helps to measure the qualitative data of the migrants statistically. Satisfaction level of migrants of the East and South districts of Sikkim has been categorised by the Likert’s five-point scale in the following manner:

Table 1.7 Five-point scales for measuring the satisfaction level of the migrants in the study area after Johns, 2010

1	Very dissatisfied	More Negative
2	Dissatisfied	Negative
3	Neutral	Neutral
4	Satisfied	Positive
5	Very satisfied	More Positive

Source: Prepared by the researcher

Table 1.8 Five-point scales on time bindings for measuring the satisfaction level of the migrants in the study area, 2018

1	None of the time	More Negative
2	Little of the time	Negative
3	Some of the time	Neutral
4	More of the time	Positive
5	All of the time	More Positive

Source: Prepared by the researcher

1.9.2.18 Cronbach's Alpha reliability test

The majority of investigators used the Likert's scale to analyse the continuity of the data or the compatibility of the data (Glim and Glim, 2003). The alpha of Cronbach was adopted by many investigators as a means of interdependence of internship. The consistency between the refinement of the level of interrelationship between the items, while the homogeneity refers to the grades of a conjunction of the items (Green et al., 1977). The formula for Alpha given by Cronbach is shown below (Cronbach, 1951):

$$\alpha = \frac{n}{n - 1} \left(1 - \frac{i \sum V_i}{V_t} \right) \dots\dots\dots 1.23$$

Where, n = the number of items,

Vi = the variance of the total scores and

Vt = the variance of the item scores

α = the mean of all possible split-half coefficients and the value expected when two random samples of items from a pool like those in the given test are correlated
Value level of reliability of the Cronbach's Alpha is given below (Hair et al., 2010):

Table 1.9 Cronbach's Alpha level of reliability

Level of Reliability	Cronbach's Alpha Score
Less Reliable	0.00 – 0.20
Rather Reliable	> 0.20 – 0.40
Quite Reliable	> 0.40 – 0.60
Reliable	> 0.60 – 0.80
Very Reliable	> 0.80 – 1.00

Form of evaluation made in the Likert's scale value of 1 to 5 denotes the individual opinion regarding their satisfaction level is categorised in the Table 1.7 & Table 1.8 (Likert, 1932 and Johns, 2010):

1.9.2.19 „t'-Test (Two-tailed)

The test statistic of a T' test is T-value. Conceptually, T-values are an extension of the Z-score. In one way, the T-value represents how many standard units separate the media of the two groups (Navarro, 2015). The T' test is a kind of speculative statistic. It is used to determine whether there are significant differences between the two groups (Woodward and Elliott, 2007). Independent two-sample t-test has been chosen for hypothesis testing to conduct this study.



Plate 1.1: During Household Survey, 2018 (a) Lal bazar market, Gangtok (b) Twilight hotel in Gangtok (c) Saloon in Jorethang (d) Constructional work place in Sambuk (e) Ration shop in Singtham (f) Construction work place in Jorethang

Independent two-sample t -test is defined as (Abbott, 2016):

$$t = \frac{\bar{x} - \bar{y}}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \dots\dots\dots 1.24$$

Where, $t = t$ - value

\bar{x} = Sample mean of x variable

\bar{y} = *Sample mean of y variable*

n = Sample size

S = Standard deviation of sample, and S defined as:

$$S = \sqrt{\frac{\sum(x_i - \bar{x})^2 + \sum(y_i - \bar{y})^2}{n_1 + n_2 - 2}} \dots\dots\dots 1.25$$

$H_0: \mu_1 = \mu_2$, and $H_1: \mu_1 \neq \mu_2$

in Two-tailed test at $(n_1 + n_2 - 2)$ Degree of freedom (df)

if, calculated t -value is greater than ($>$) critical t -value, then

H_0 is rejected and H_1 is accepted and vice – versa

H_0 = Null hypothesis and H_1 = Alternative hypothesis

1.9.2.20 Chi-square test

Relationships between classified variables are usually examined through chi-square tests. The null hypothesis of the chi-square test is that there is no relation between the individual variables classified in the data structure. The chi-square method compares the size of any difference between the expected and actual outcome based on the sample size and the variable number of relationships. The formula of Chi-square is as follows

$$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i} \dots\dots\dots 1.26$$

Where, c = Degree of freedom

O = Observed value (s)

E = Expected value (s)

χ^2 is the calculated chi-square value. Considering the critical values and the chi-square values for the different variables level it has been found that in most cases we found the relationship statistically not significant. Therefore, if the chi-square value is less than the critical value, it can be said that there is no statistically significant relationship between the variables.

1.9.2.21 ANCOVA

ANCOVA refers to “analysis of covariates”. Covariates are commonly used as control variables within groups. Adjusted means are usually tested to see if there is a significant relationship between the ANCOVA output and the F-test attendance. (Rutherford, 2001). Comparing the meanings of core and integrated groups can provide insights into the role of covariates (Mukherjee et al.,2018). Significant F-tests are used to examine the effect of each root and interaction in a single break dependent group consisting of individual divisions and for multiple (> 2) groups. (Krieg, 2012). F-group-variant consists of split segments. If the math p-value is small, significant relationships exist.

F- test is defined as (Gupta, 2000):

$$F = \frac{S_1^2}{S_2^2} \dots\dots\dots 1.27$$

Where, $S_1^2 = \frac{(X_1 - \bar{X}_1)^2}{n_1 - 1} \dots\dots\dots 1.28$ and $S_2^2 = \frac{\Sigma(X_2 - \bar{X}_2)^2}{n_2 - 1} \dots\dots\dots 1.29$

It should be noted that S_1^2 is always the larger estimated of variance, i.e. $S_1^2 > S_2^2$

$$F = \frac{\text{Larger estimated of variance}}{\text{Smaller estimated of variance}} \dots\dots\dots 1.30$$

$$\begin{aligned} n_1 - 1 &= v_1 \\ &= \text{Degree of freedom for sample having larger variance and } n_2 \\ - 1 &= v_2 \\ &= \text{Degree of freedom for sample having smaller variance} \end{aligned}$$

The calculated value of F is compared with the tabulated value of v_1 and v_2 at the significance level of 5% or instantaneous 1%. If the calculated value of F is greater than the tabulated value, then the F ratio is considered significant and the null estimate is discarded. On the other hand, if the calculated value of F ratio is less than the tabulated value, the null hypothesis is accepted and it is assumed that both the samples came from the same variable of the population. (Gupta, 2000).

1.9.3 Cartographic techniques

The various suitable cartographic techniques have been used to represent the analysed data for the study such as bar graph, compound bar graph, pie graph, star diagram, scattergram diagram, conical diagram, pyramidal diagram, boxplot diagram, pareto chart, sunburst diagram, funnel diagram, radar diagram, surface diagram and Treemap diagram etc.

For statistical analysis of data SPSS software version 26.0 has been used extensively. Maps were prepared with the GIS software ArcGIS version 10.3 to achieve the spatial database creation. Microsoft Office 2019 was used to calculate and prepare the different cartographic techniques and documentation pertaining to the study.

1.10 Summary

This chapter dealt with the outline of the present study. Structure of the study has been discussed in this chapter. This chapter concerns the conceptual framework of the study; statement of the problem, the rationality of the study; aim and objectives of the study; considered hypotheses of the study. The chapter extensively discusses the previous studies related to the topic. Appropriate methodologies have been chosen for the study. It also discusses the sources of secondary data. The chapter also highlights as to how to construct the sample design and determine sample size to conduct the household survey. The chapter further discusses different tools and techniques that have been applied in the study.

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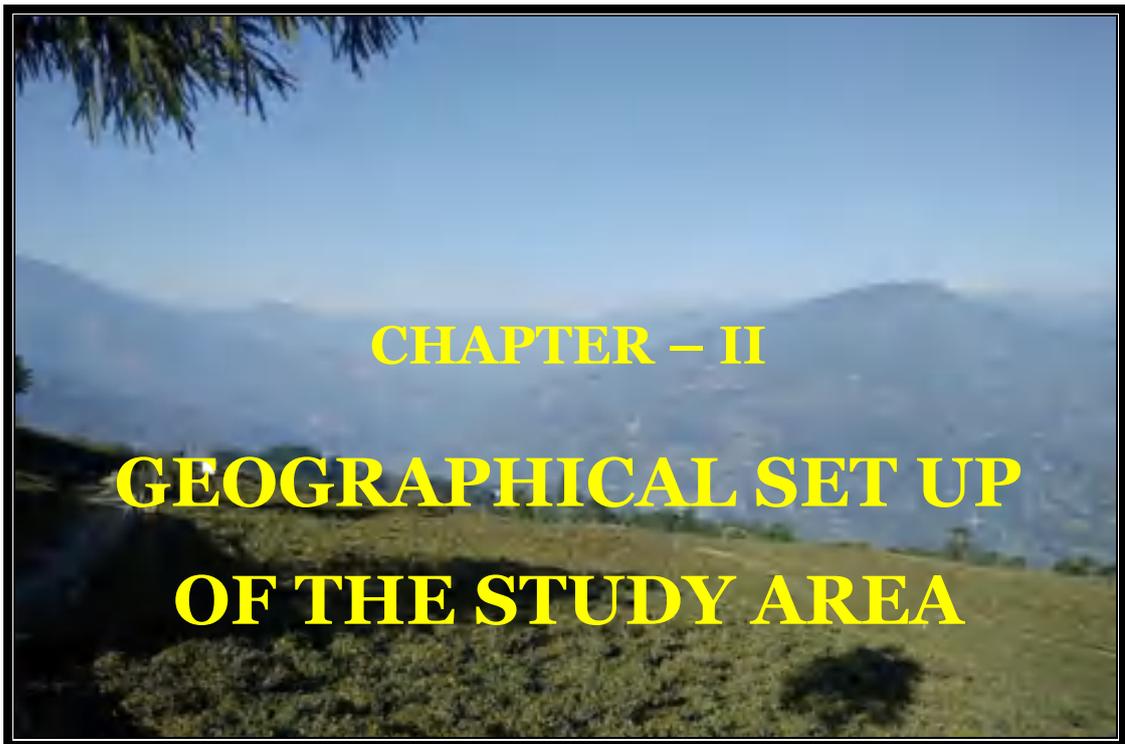
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CHAPTER – II

**GEOGRAPHICAL SET UP
OF THE STUDY AREA**

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2.1 Introduction

The present chapter focuses on the physical as well as socio-cultural and socio-economic conditions of the study area. The main objective of this chapter is to study the physical and socio-economic as well as socio-cultural background of the study area along with the Sikkim as a whole. The chapter also deals with the physical and socio-economic as well as socio-cultural set up to the possibility of in-migration of the population to the study area. After the merger of Sikkim with Indian Union, how the physical and human environment are changing day by day and how it accelerates or decelerates the process of in-migration into the study area have been described. Historical background of the study has also been discussed in this chapter. Among the physical features of the study area physiographic features, geology, drainage system, climatic conditions, soil and its degradation and vegetation cover are discussed. The chapter also deals with socio-cultural along with economic conditions such as the distribution, density and growth of population, sex ratio, distribution of schedule caste and schedule tribe population, different occupational structure and economic activities, health, land use pattern, agricultural pattern, irrigation system, minerals, energy resources, transport and communication, ethnicity and tourism of the study area along with the state of Sikkim as a whole.

2.2 Database and methodology

2.2.1 Database

The present chapter is mainly based on secondary data, which was collected from the different websites and reports published by the different departments of Government of Sikkim and Government of India. Physiographic and drainage maps have been prepared from DEM, downloaded from United States Geological Society (<https://earthexplorer.usgs.gov/>). Geology and rocks and minerals were collected from the Geological Survey of India, Sikkim division. The road transport network of the study area was digitized from Google Earth. Soil map was collected from the National resource Atlas of Sikkim. Vegetation cover map has been prepared using NDVI from Landsat 8. ArcGIS 10.3 and Global mapper 26 have been used.

Socio-cultural attributes such as population, decadal changes, density, distribution of scheduled caste and scheduled tribe population, sex ratio, literacy rate, distribution of workers and non-workers were collected from the report on District census handbook, 2011 (Census of India, 2011) and Department of Economics, Monitoring and Evaluation, Government of Sikkim (DESME, Govt. of Sikkim, 2018). Health related data were collected from the website of the Department of Health, Government of Sikkim (Govt. of Sikkim, 2018). Land use pattern of Sikkim has been collected from Human development report, 2001 (Govt. of Sikkim, 2013) and statistical profile of Sikkim, 2006-07 (DESME, 2018). Distribution of minerals was collected from the report published by the G.S.I. of Sikkim (ENVIS, 2018). Cropping pattern, district-wise agricultural area, production and yield has been collected from Department of food security and agriculture development department, Government of Sikkim (Govt. of Sikkim, 2018). The large, small and micro industries have been collected from the annual reports, published by the Ministry of MSME, Government of Sikkim (DCMSME, 2018). The energy production and distribution were collected from the Sikkim energy and power department, Government of Sikkim (ENVIS, 2018). Data regarding the numbers of domestic and foreign tourists visited the state during 2011-2017 has been collected from the Tourism and civil aviation department, Government of Sikkim (Department of Tourism, Govt. of Sikkim, 2018). The suitable statistical techniques have been used by SPSS version 26.0.

2.2.2 Methodology

The collected secondary data and maps summarised using the following suitable statistical methods.

- **Normalized Difference Vegetation Index (NDVI)**

The Normalized Difference Vegetation Index (NDVI) was introduced by ROUSE et al. (1974). NDVI has been prepared from Landsat 8 image (resolution 30m) with near-infrared band (band 5) and red band (band 4). NDVI has been calculated using the math algebra of data management tools in ArcGIS software version 10.3. The target WRS Path/Row of East and South district is 139/41 and the date of acquisition on 7 July 2018. The calculation of NDVI defined as

$$NDVI = \frac{NIR - R}{NIR + R} \dots\dots\dots 2.1$$

- **Decadal changes**

To find out decadal changes of the population, the following formula has been used (Srivastava and Srivastava, 2004).

$$Di = \frac{Pi - P}{P} \times 100 \dots \dots \dots 2.2$$

Where, Di = Decadal variation of population

Pi = Total population of present decade

P = Total population of past decade

- **Literacy rate**

To find out literacy rate, there are two methods or indices of literacy have been used in measuring the level of literacy (Maurya, 2014):

i) Crude literacy rate and ii) Effective literacy rate

To find out the Crude literacy rate (CLR) following formula has been used.

$$CLR = \frac{\text{Literate population}}{\text{Total population}} \times 100 \dots \dots \dots 2.3$$

Here effective literacy rate is used to find out the level of literacy of the state and the study area, where children upto age of 7 years are not included in the total population of the area. Effective literacy rates are calculated by the following formula:

$$\text{Effective Literacy rate} = \frac{\text{Number of literates}}{\text{Total population above 7 years of age}} \times 100 \dots \dots \dots 2.4$$

- **Health**

For the discussion of health conditions of the study area as well as Sikkim, availability of health institutions, availability of beds in the health institutions and availability of doctors in the area has been taken into consideration. The following formula is adopted to find out the availability of health institutions, availability of beds in the health institutions and availability of doctors per 10000 thousand population of the area.

$$\text{Health institutions per 10000 population} = \frac{\text{Total number of health institutions}}{\text{Total population}} \times 10000 \dots \dots \dots 2.5$$

$$\text{Beds per 10000 population} = \frac{\text{Total number of beds in health institutions}}{\text{Total population}} \times 10000 \dots \dots 2.6$$

$$\text{Number of doctors per 10000 population} = \frac{\text{Total number doctors}}{\text{Total population}} \times 10000 \dots \dots \dots 2.7$$

- **Crop combination**

Crop combination of the East and South districts of Sikkim has been prepared with the help of statistical technique used by Weaver in 1954. Total harvested land occupied by each crop in the area is taken into consideration. Actual percentage of area under each crop, which occupies more than 1% of the total cropping area has been computed to determine the crop combination of the study area (Weaver, 1954). The theoretical measurement for the crop combination was employed as follows:

- Monoculture = 100% of the total cropland for one crop
- Two crop combination = 50% in each crop for two crops
- Three crop combination = 33.33% in each crop for three crops
- Four crop combination = 25% in each crop for four crops
- Five crop combination = 20% in each crop for five crops

After the calculation of the combination of crops, determining of the minimum value of the crop combination using the method of standard deviation (SD) as follows:

$$SD = \frac{\sum d^2}{n} \dots\dots\dots 2.8$$

Where, d = Difference between percentage of theoretical value and percentage of actual harvested area of crop land

n = total number of crops in a given combination

- **Annual growth rate**

The annual growth rate of domestic and foreign tourists is taken into consideration to determine the aspects of tourism in Sikkim, which is one of the main bases of Sikkim's economy. The annual growth rate of tourists during 2011-2017 is calculated by the following formula (Srivastava and Srivastava, 2004).

$$Gi = \frac{Ti - T}{T} \times 100 \dots\dots\dots 2.9$$

Where, Gi = Annual growth rate of tourists

Ti = Total tourists visited in present year

T = Total tourists visited in last year

2.3 Historical background of Sikkim

Sikkim is a stunning state in the north-eastern fringe of India. No extensive information has been recognized about the history of Sikkim, it is supposed that 'Lepchas' or *rong* (*ravine* folk) were the indigenous populace of Sikkim (Subba, 2010). Later, the 'lepchas' got occupied with other clans. In the ninth century, Guru *Rinpoche*, a Buddhist saint, happened to pass through the domain of Sikkim (Chhetri, 2010). The monk blessed the soil and introduced the belief of Buddhism to Sikkim. He also prognosticates that the state would be governed by the royals in the centuries afterwards (Chakraborty, 2012).

Guru *Tashi*, the king of *Mi-nyak* House in *Kham* of East Tibet came to the Chumbi Valley of Sikkim and established the settlements during the 13th century (Chhetri, 2010). The descendants of Guru Tashi cultured by local customs and made excellent kindred with the 'Lepchas' people. Due to these good relationships, the grandson of Guru *Tashi* became the ruler of Sikkim (Gurung, 2011).

The organized history of Sikkim can be said to have begun with the blessing of its first *Chogyal* (King) in 1642 AD. The gazetteer of Sikkim, which was compiled by H. H. Risley in 1894, throws light on the different racial groups of the area. In ancient times, Sikkim was known as '*Mayel-Lyang*', meaning a secret heaven to the Lepchas (Joshi, 2004). Later on, the Tibetans called the region '*Denzong*' meaning the basin of rice (Bhattacharyya, 1984). The present name of Sikkim is of Limboo or *Tsong* origin (Nepali), which means 'A new home' (Gurung, 2011). Dr. H.H. Risley, in his Gazetteer of Sikkim State' has mentioned that the 'Sikhim' has been imitative from the Limboo word '*Su*' and '*Khim*' meaning a new home or place. With the course of time the word was stained into '*Sukhim*', which was later anglicized to 'Sikkim' (Risley, 1894). The name thus seems to have originated more to mean a new place or house than any other else. Before the entrance of the Bhutias from Tibet, Sikkim was occupied by different Kirati tribes (Plaisier, 2007). Lepchas have studied the ingenious inhabitants though, Limboos are also considered as a very old community of the region. It is so because the border of Limbuana, the then land of the Limboos, had expansion upto the left bank of the Teesta before the boundaries between both the countries were pinched (Gurung, 2011). However, during the influx of the Bhutias from Tibet, the region is implicit in having mostly the Lepchas, although the Limboos and the Mangars are also reported to

have been found in little numbers in diverse passages in the region. There is no genuine record of the origin of the Lepchas (Basnet, 1974).

As already mentioned, the real account of Sikkim begins with the emergence of the *Chogyal* kingdom under the *Namgyal* dynasty. After a religious conflict in Tibet, a group of opponent order fled southward into Sikkim (Chhetri, 2010). At first, the Tibetan in-migration was very poor. Later, with the raise in the number of migrants, the need for society was felt (Bhattacharyya, 1984). As a result, in the early 17th century, after the intercontinental conflicts and Chinese war, three Red Hat sect Lamas fled to Sikkim and established a Tibetan kingdom (Gurung, 2011). They were *Lama Latshun Chembo*, *Lama Katog* and *Lama Nga-Dag*, who jointly sacred the first *Chogyal* of Sikkim in 1642 at Yuksom in the western part of Sikkim (Subba, 2008). The *Namgyal* dynasty ruled for more than three hundred years.

2.3.1 Namgyal dynasty of Sikkim

In 1642, Phuntsog Namgyal was the initial ruler to set up a centralized government in Sikkim.

Table 2.1 Chronological order of Namgyal Dynasty of Sikkim

Serial No.	Name of the King (Chogyal)	Period Ruled
1	Phuntsog Namgyal	1642 AD – 1670 AD
2	Tensung Namgyal	1670 AD – 1700 AD
3	Chagdor Namgyal	1700 AD – 1717 AD
4	Gyurmed Namgyal	1717 AD – 1733 AD
5	Namgyal Phuntsog II	1733 AD – 1780 AD
6	Tenzing Namgyal	1780 AD – 1793 AD
7	Tsugphud Namgyal	1793 AD – 1863 AD
8	Sidkeong Namgyal	1863 AD – 1874 AD
9	Thutob Namgyal	1874 AD – 1914 AD
10	Tashi Namgyal	1914 AD – 1963 AD
11	Palden Thondup Namgyal	1963 AD – 1975 AD

Source: Sikkim chronicle, Durga P. Chhetri, 2010

During the time of Palden Thondup Namgyal, democratic movement of the people had unhurriedly but progressively gained impetus. New political parties were formed and demand for democracy became stronger (Chhetri, 2010).

Palden Thondup Namgyal was the last *Chogyal* of Sikkim. The political disorder that began at the end of the Tashi Namgyal's rule reached such a height that the new king failed entirely to save the foundation of the kingdom (Chhetri, 2010). In 1975 the democratically elected government was established and the Namgyal dynasty that lasted for 333 years came to an end (Kazi, 2020). The Tripartite Agreement signed on 8th April 1973 was instrumental in changing the political system of the country. The Agreement was signed at Gangtok between the Government of India, the *Chogyal* and the leaders of political parties (Chhetri, 2010). Among other things, the establishment of responsible government, guarantee of fundamental rights, rule of law and independent judiciary were the main requirements of the Agreement.

Thus, the first democratically elected government was formed with Kazi Lhendup Dorji as the Chief Minister. The Assembly that met on 10th April, 1975 passed two important resolutions – firstly, the resolution demanding the institution of *Chogyal* and secondly, the resolution of merger of Sikkim with India. Both the above-mentioned resolutions were passed collectively by the House which was later authorized by majority of people in a state-wide referendum held on the 14th April, 1975 (Sidhu, 2018). Finally, the foundation of monarchy was abolished and Sikkim was merged with India by the Thirty Sixth Constitutional (Amendment) Act passed in 1975 and became the 22nd State of Indian Union on 16th May, 1975 (Gurung, 2011).

2.4 Physical Characteristics

Sikkim is a tiny, awfully mountainous state in the Indian Himalayas with sharply defined and tremendously steep watersheds, barely 114 km long and 64 km wide and measuring only 7096 sq. Km. in area (DESME, Govt. of Sikkim, 2018). The physical landscape of the state is characterized by great variations in elevation. The elevation of the state ranges between 250 m in the south to above 8500 m from mean sea level in the north.

2.4.1 Physiography

Sikkim has a very uneven landscape and disturbing physical features. The whole state is bounded on the north, east and west by high ridges and looks like a arena. The convex gulf of the greater Himalayas in the northern part separates the state from the Tibetan highlands (Chowdhury, 200). The longitudinal Chola range separates the state from eastern Tibet and the Singalila range marks the border between Sikkim and Nepal in the west.

Geologically, the state belongs to the upper part of the Teesta Basin. The physical landscape of the state greatly enhances the work of the river Teesta. The structural operation of the land is from north to south (Starkel and Sarkar, 2014). The north-western part of the state is highly elevated and therefore covered with snow almost all the year round. Similarly, landscape features are found throughout the northern and eastern highlands (Chowdhury, 2006).

The current landscape of the state is the ongoing glacial, periglacial; glacio-fluvial, fluvial and pluvial activities are constantly changing the appearance of the topography of this young fold mountains (Choudhury, 2006).

Table 2.2 Broad physiographic division of Sikkim

Sl. No.	Zone	Altitude	Special character
1	Lower hills	300m to 1800m	Hilly topography with flat cultivated lands
2	Upper hills	1800m to 3000m	Major forest areas
3	Alpine zone	3000m to 4500m	Covered with scrubs and grassland
4	Snow land	Above 4500m	snow land area without vegetations

Source: Sikkim: Geographical perspective, Choudhury. M., 2006

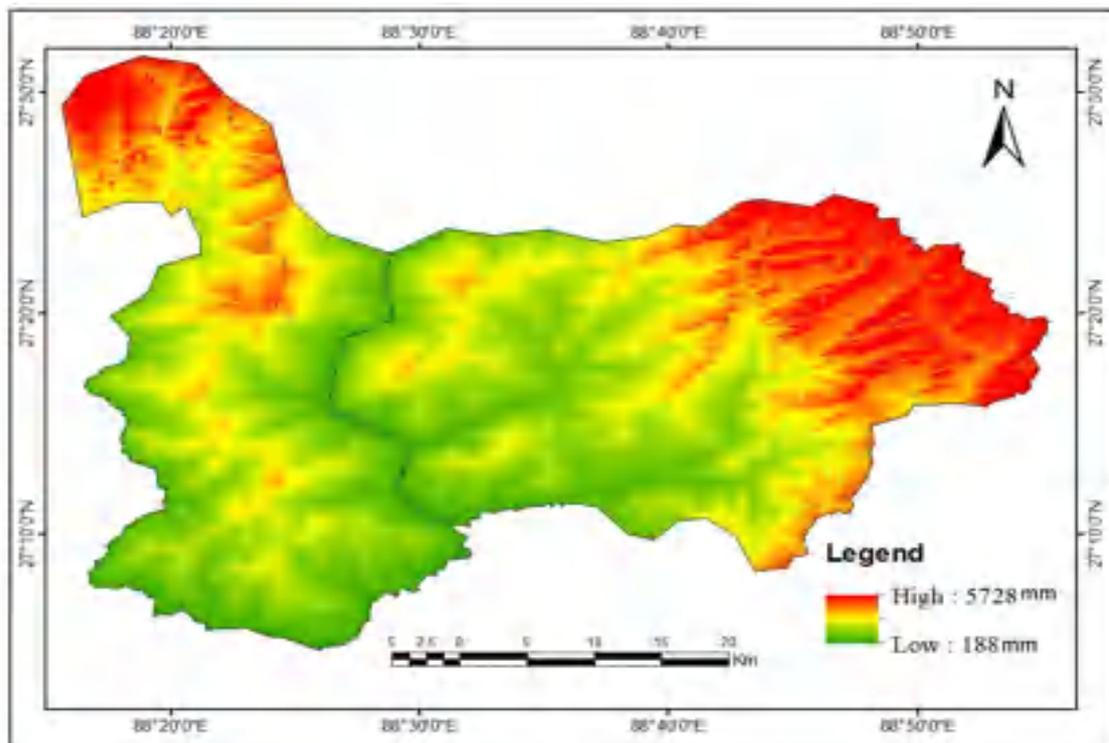


Figure 2.1 Physiographic divisions of the study area

The East district of the state is an absolutely mountainous area and the region adjoining China is generally roofed with snow (Kumar and Singh, 2001). Approximately three fourths of the district is covered by forest. The topography of the district is out and out mountainous. The district is sloping towards west from east. River basin of the district has a mean elevation of about 300m above mean sea level in the west and upward to the east with an average height of near about 5500m above the mean sea level (Negi, 1991). The East district of Sikkim is bounded by some of the world's most significant mountain ranges which are Mt. *Lamaongden* (Ht. 19366 ft above MSL), and Mt. *Masunyang*e (Ht. 19300 ft. above MSL). These mountains are interspersed with several passes (La) linking to the neighboring countries. These passes are Jelep La (4300m above MSL), Nathu La (4300m above MSL) and Cho La, Bhutan La (4000m above MSL) (DESME, Govt. of Sikkim, 2015).

The broad relief of the South district is sloping in the direction of the south from the north. The part is highly elevated with an average of 4600m above the mean sea level in the southern part (Rawat et al., 2012). Mainly the river basin has a mean elevation of less than 330m from mean sea level. The elevation of the district ranges from 300m in extreme south of Rangit valley and Teesta valley in east to 5000m in the north (Sharma, 2008). The farthest northern part of the district is snow bound having more than 5000m from sea level covering an area of 55km sq. Some part of Alpine zone is also covered by snow, occupying about 70km sq. of the whole area of the district, having forest and mixed jungles (Sharma, 2008). The middle hills have an area of 160 km sq. and lower hills have covered 300km sq. out of the total district area (Sharma, 2008). The river valley has occupied around 140 sq. km. Most of the inhabitant blocks of the districts fall in the lower hills which have the altitudinal range of 600m to 1800m, because these areas are favourable for settlement due to low degree of slope which is comparatively easier for agricultural practice (Rawat et al., 2012).

2.4.2 Geology

Geological structure is not only a dominant controlling factor in the determination of relief and physiographic features on a region, but also in the formation and nature of rocks and minerals (Mukherjee, 1997). The importance of the study of geological structure of a region can hardly be overemphasized as it is fundamental to various

economic activities including agriculture and mining (Gerrard, 1994). Besides, a thorough study of geological structures is fundamental to land use planning of an area.

Sikkim Himalaya, which is the Lesser Himalayan series, made up a solid succession of Proterozoic - Paleozoic Daling, Gondwana and Buxa rocks (Bhattacharyya and Mitra, 2009). Sikkim Himalaya has been sub-divided into following distinct tectonic domains (Dasgupta et. al. 2004), which are siwalik, lesser Himalayan domains and higher Himalayan domains. These domains are separated one from another by the thrust faults (Banerjee et al., 2019).

Stratigraphically speaking, Sikkim has been characterised into four structural belts.

- i. Foothill belt
- ii. Inner Belt
- iii. Axial Belt
- iv. Trans-Axial Belt.

All the above four structural belts are lying in a sequential way, i.e., from north to south. A narrow strip of Gondwana rocks in the foothill belt is exposed in the form of 'tectonic window' (Boot, 1988). Sikkim is recognised as a young fold mountain system which falls under the greater and lesser Himalaya. Tectonically speaking, the study area is composed of Kanchendzonga and Darjeeling Gneiss along with Chungthang formation (graphite schist, marbles, calc-silicate rocks, quartzite and infrequently amphibolite) with granites and Tethyan sedimentaries (Basu, 2013). The Tethyan Mesozoic and Palaeozoic sequence in the northern and north-western part of Sikkim are fossiliferous (Basu, 2013).

The northern part, eastern part and western part of the state are composed of hard massive gneissose rocks, while central part and southern part of the state are composed of soft, thin and schistose rocks (Patro and Harinarayana, 2009).

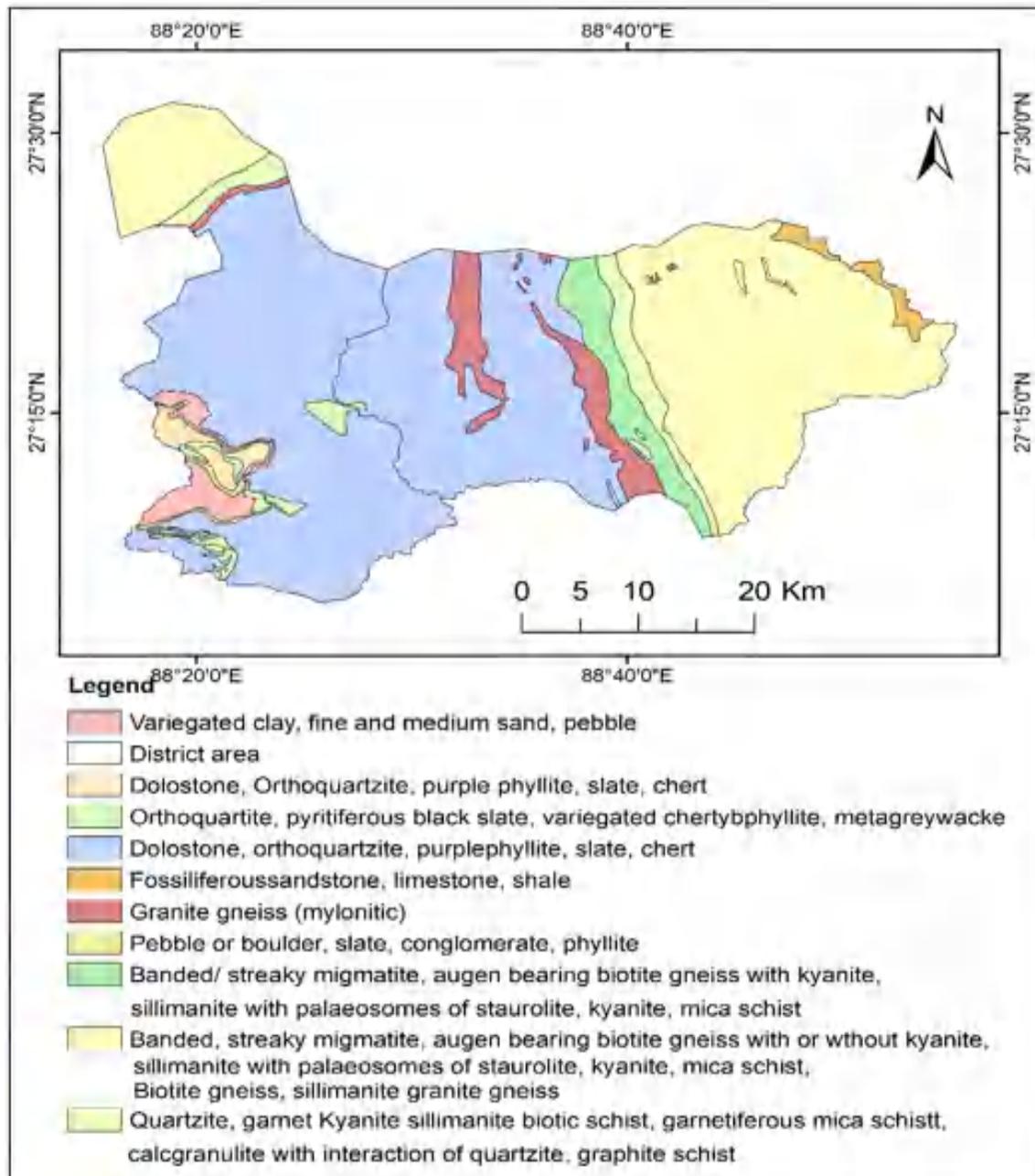


Figure 2.2 Geology map of the study area

2.4.3 Drainage system

Numerous seasonal and perennial rivers and their tributaries dissect Sikkim, forming a unique and intricate river system. Because of the folded structure of the mountain, all the river system of the state has formed a dendritic pattern (Choudhury, 2006). In accordance with the trend of the transverse ranges and the spurs, the course of the main rivers of the region is generally aligned in the north-south direction. The most imperative river of the State is Teesta, which separates the region into two different split fifty-fifty (Mukhopadhyay, 1982). The central basin of which is emphasised by the

relatively softer rocks. The river Teesta, the heart of Sikkim, rising from the snout of the Zemu glacier, is fed by numerous tributaries (Choudhuri and Choudhuri, 2015). Within a few kilometres from the source, it drops to 1,000 metres near Singhik and Mangan. Through the North district and the boundary of East and South districts, it leaves the State at Rangpo (Negi, 1991). The main trunk tributary which forms a unique drainage system with the countless streams flowing down the slope of the Himalayas is the Rangit. It is the most important tributary of Teesta (Sikkim ENVIS, 2019). It originates in the Talung glaciers in West Sikkim. River Rangit travels for about 60 kms. Downstream and joins with the Teesta below Melli Bazar. It also divides the South district from the West district (Das and Ray, 2001). It is fed by the Kanchanjunga group of glaciers and a number of tributaries flowing from the eastern slope of the Singaliia range and also from the western slope of the water divide of Teesta and Rangit (Mukhopadhyay, 1982). Important tributaries are Relli, Rathong, Rimbi, Kalej, Rishi and Roathak (Table 2.3).

Table 2.3 Major Tributaries of Teesta River

Sl. No.	Left-bank Tributaries	Right-bank Tributaries
1.	Lachung Chhu	Zemu Chhu
2	Chakung Chhu	Rangyong Chhu
3	Dik Chhu	Rangit River
4	Rani Khola	
5	Rangpo Chhu	

Source: Sikkim ENVIS, 2018

Teesta is the main physical boundary between East and South districts of Sikkim (Rawat et al., 2012). The East district of Sikkim is drained by three main rivers, which are *Dik Chhu*, *Rongni Chhu* and *Rongpo Chhu*. The *Dik Chhu* is the left bank tributaries of Teesta (Goyal and Goswami, 2018). It has two main feeders, which are *Bakcha Chhu* and *Rate Chhu*. *Bakcha Chhu* and *Rate Chhu* originate from North district and South district respectively in the Indo-Tibetan border ranges in the east. *Dik Chhu* marks the boundary of North and East districts of Sikkim. *Dik chhu* meets Teesta near Rakdong (Meetei et al., 2007).

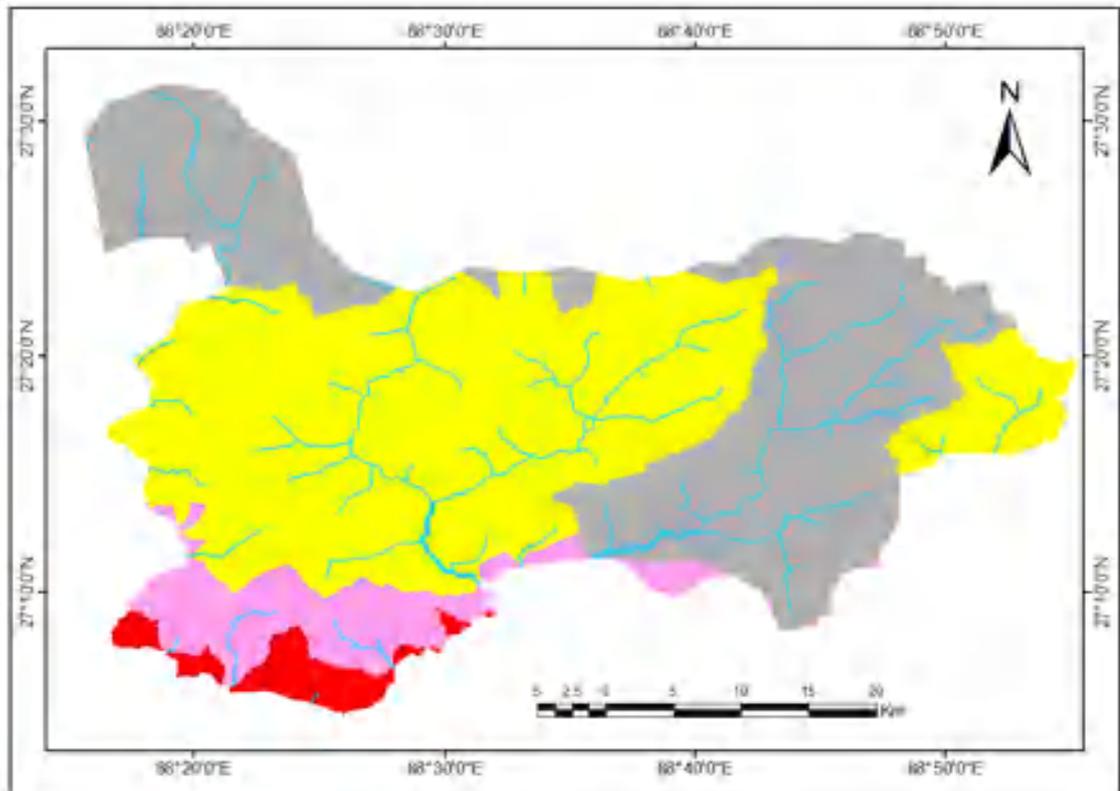


Figure 2.3 Drainage map of the study area

The *Rongni Chhu*, another left bank tributary of Teesta is the combination of three tributaries, i.e. *Yali Chhu*, *Rora Chhu* and *Takchom Chhu*. All these streams originated in the East district of Sikkim. The *Rongni Chhu*, also known as *Rani Khola* and it meets the Teesta at Singtam (Forest and Environmental Department, Govt. of Sikkim, 2018).

The *Rangpo Chhu*, also the left bank tributary of Teesta originated from a lake near the Indo-Chinese border in the East district of Sikkim. Its feeders include *Byu Chhu*, *Lunze Chhu*, *Rangli Khola* and *Rishi Khola*. The *Rangpo Chhu* meets the Teesta near Rangpo (Forest and Environmental Department, Govt. of Sikkim, 2018).

The South District of Sikkim is drained by two important river systems of Rangit and Teesta River and their swift flowing tributaries (Mukhopadhyay, 1982). The two river systems bounded the district from east. West and southern boundary and play a dominant role in sculpturing the land surface feature of the district and both following north to south (Negi, 1991). The Rangit River originated from Kanchi reserve forest area with an altitude of about (4600m) in the northern part of Ravongla Sub-division and follows westward as head stream and joined by *Rangdung Chhu* and *Langdung*

Chhu near Phamthang block beyond this it flows Rangit River (Das and Ray, 2001). It is joined by *Ramman Khola* and then known as Great Rangit and ultimately falls into Teesta at Melli (Rawat et al., 2012). The Rangit River which flanks the western and southern boundary of the district has a total length of about 98 km from head water source to Melli, where it joined to Teesta (Sadangi, 2008).

Various tributaries of Rangit which originate from the south District. Important tributaries are *Rangdung Chhu* and *Kayan Chhu*, both have 12km each length. The tributary which joins near Phamtham is *Langdung Chhu* which is also 12km in length (Rudra, 2018). Downward the tributaries which join the Rangit river are *Barme Chhu*, *Sangang Chu*, *Bania Khola*, *Rayong Khola*, and *Rinchu Khola*. The most important tributary which joins the Rangit River in the southern part is *Manpur Khola* and *Khani Khola* (Mukhopadhyay, 1982).

The eastern bound Teesta has a length of 45 km from Lingi where it touches the south district to Melli where it leaves the south district and the Sikkim enters the west Bengal (Rudra, 2018). Out of the tributaries of Teesta River originated from south district *Rangpham Chhu* and *Rangpo Khola* has the longest length both having 12km each. The second longest tributary is *Katlej Khola* which has 9 km length (Rawat et al., 2012). The other remaining tributaries i.e., *Brum Khola*, *Ben Khola*, *PungPung Khola*, *Seti Khola* and *Rabi Khola* have more than 6.5 km (Lama et. Al. 2004).

2.2.4 Climate

Sikkim has a peculiar climatic condition which varies from tropical heat in the lower valleys to the freezing cold in the higher altitudes. State is basically divided into: subtropical humid type (upto 1500 m), semi-temperate type (1500 m to 2000 m), temperate type (2000 m to 3000 m), Snow forest type (3000 m to 4000 m), Tundra type (4000m to 6000m), and arctic type (above 6000 m) (Choudhury, 2006). The zone above 6000 m remains permanently snow covered throughout the year; however, snow comes down upto 2500 m as during winter. Sikkim Himalaya is presumed to be the most humid place in the entire Indian Himalaya because it is situated very close to Bay of Bengal and is directly exposed to moisture overloaded southwest monsoon (Bawa and Ingty, 2012). Sikkim is one of the wettest regions in India as it comes directly on the path of the monsoon clouds; nonetheless, the rainfall varies with varying altitude. Sikkim receives rain from mid-February to early-November, but the intensity is higher during late-May to early-September (Barua, et al., 2004). The monsoon normally

occurs from June to August, of which July is the wettest month of the year receiving total rainfall upto 5000 mm (Pangthang, East Sikkim), which is the highest in the eastern Himalaya (Bawa and Ingty, 2012). The downpour is very less in the northern part of Sikkim because the monsoon cloud dries out by the time it reaches the northern barrier. The temperature is not uniform in the state due to variability in the altitude (Rawat et al., 2012).

The East and South districts as a whole comes under the influence of south west monsoon climate conditions due to the location and direct exposure or over looking to the Bengal plain (Rahman et al., 2012). But the districts have its own regional variation caused by its topographical location, elevation, topography and other physical aspects, which inversely produce local rainfall patterns, variation in temperature etc. (Vishwakarma et al., 2016). The months during February to May have experienced a pleasant climatic condition (Figure 2.6). Which pulls in-migrants to the study area.

2.2.4.1 Temperature

Highest mean monthly temperature of the study area during 2015 was recorded in July (26.34 °C) and lowest mean monthly temperature was recorded in January (14.36 °C). Highest maximum temperature of the study area was recorded for the year 2015 during the month of July (29.89 °C) and lowest maximum temperature was recorded in the month of January (20.28 °C). Highest minimum temperature of the study area during 2015 was 22.79 °C for the month of July and lowest minimum temperature was 8.44 °C for the month of January. Mean maximum temperature of the study area was 26.86 °C and mean minimum temperature was 17.14 °C during 2015. Average mean temperature was recorded 22.00 °C. (Table 2.4). Coldest month of the study area is January and the hottest month of the study area is July during 2015. Winter season prevails during December to January and these months are in dry condition due to the effects of north-east monsoon. Snowfall has occurred in the high-altitude areas during the winter season. Summer season prevails during May to September in the study area. Rainy season occurred along with summer season from the month of June to September due to the effects of south-west monsoon.

Table 2.4 Monthly weather parameters of the study area, 2015

Month	Temperature °C			Relative Humidity in %			Sunshine Hours	Rainfall (cm)
	Max.	Min.	Mean	Max.	Min.	Mean		
Jan	20.28	8.44	14.36	87.19	49.61	68.40	0.93	0.36
Feb	23.56	10.95	17.25	86.86	42.93	64.90	3.07	0.96
Mar	27.06	14.78	20.92	82.67	39.9	61.29	2.8	2.91
Apr	27.35	17.88	22.61	83.8	41.76	62.78	3.67	11.90
May	29.42	20.74	25.08	86.32	53.96	70.14	4.25	15.30
Jun	29.44	22.47	25.96	88.56	60.36	74.46	3.29	24.87
Jul	29.89	22.79	26.34	90.64	71.29	80.97	0.92	15.32
Aug	29.11	22.77	25.94	90.45	66.8	78.63	2.26	15.10
Sep	29.62	22.30	25.96	90.4	62.66	76.53	2.02	9.92
Oct	28.95	19.08	24.02	90.38	50.93	70.66	5.01	2.53
Nov	26.08	14.34	20.21	88.56	52.2	70.38	1.77	2.50
Dec	21.50	9.19	15.34	87.12	50.35	68.74	0.3	0.04

Source: Indian Meteorological Department (IMD), 2015

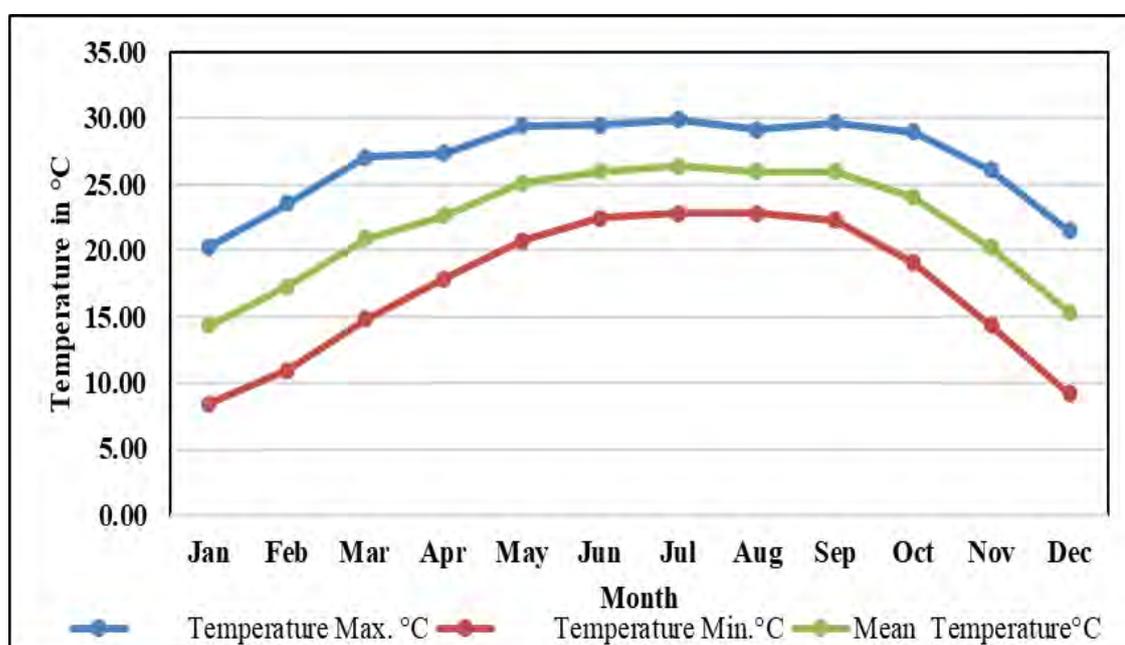


Figure 2.4 Monthly maximum, minimum and mean temperature of the study area, 2015

2.2.4.2 Rainfall

Yearly rainfall of the study area is widely varied from 24.87 cm in the month of June to only 0.04 cm in the December. The average annual rainfall is found 8.48 cm in the study area (Table 2.4). Nearly, 80% of rainfall of the area has occurred during the rainy season by the effects of south-west monsoon. Rainfall of the study area during the pre-monsoonal season ranges between 15.3 cm in May to 2.91 cm in March. Whereas, during the winter season in the area rainfall ranges between 0.96 cm in February to only

0.04 cm in December. The relation between temperature and rainfall of the area are directly proportional to each other's which means rainfall has increased along with increasing tendency of temperature and vice-versa.

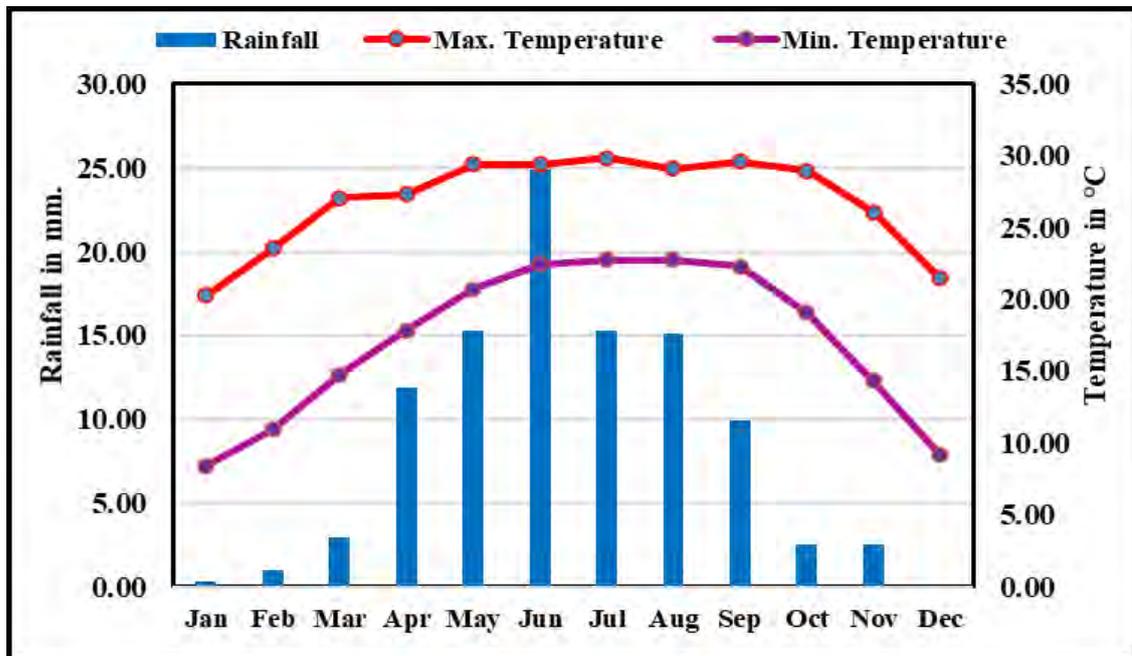


Figure 2.5 Rainfall and maximum-minimum temperature of the study area, 2015

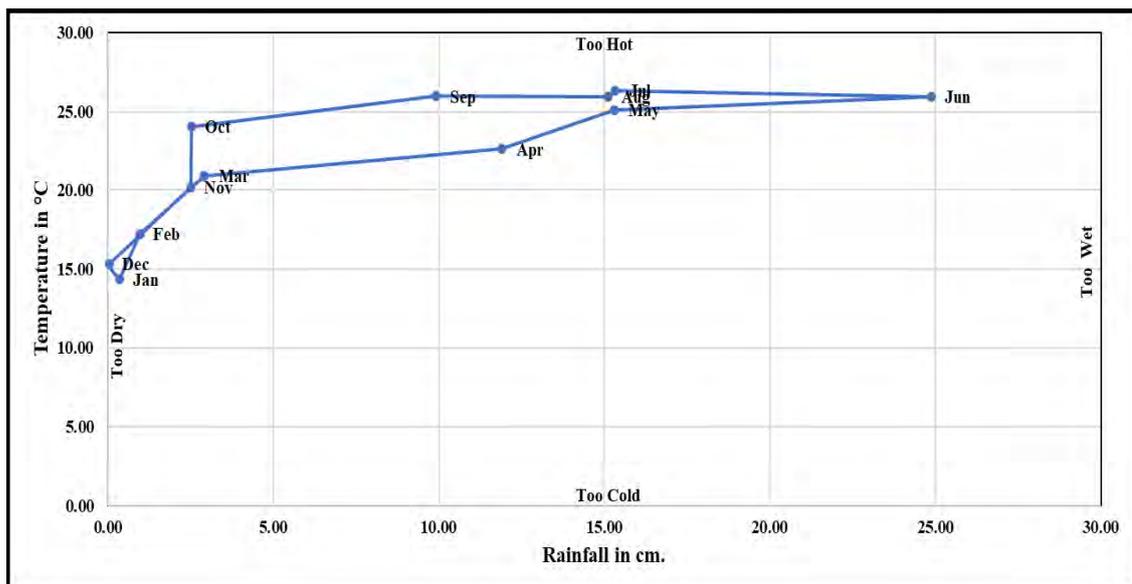


Figure 2.6 Hythergraph of the study area, 2015 after Griffith Taylor, 1949

2.2.4.3 Relative Humidity

The highest mean monthly relative humidity of the study area is 80.97% during the month of July and lowest mean monthly relative humidity of the study area is 61.29% for the month of March. Highest maximum relative humidity is found in July (90.64%)

and lowest maximum relative humidity is found in March (82.67%). Highest minimum relative humidity in 2015 was recorded for the month of July (71.29%) and lowest minimum relative humidity was recorded during March (39.90%). In the study area in 2015 average mean relative humidity was 70.65%; average maximum relative humidity was 87.75% and average minimum relative humidity was 53.56%. So, it revealed that the wettest month of the study area is July and the driest month of the study area is March. Relative humidity of the area varies with the occurrence of south-east and north-west monsoon.

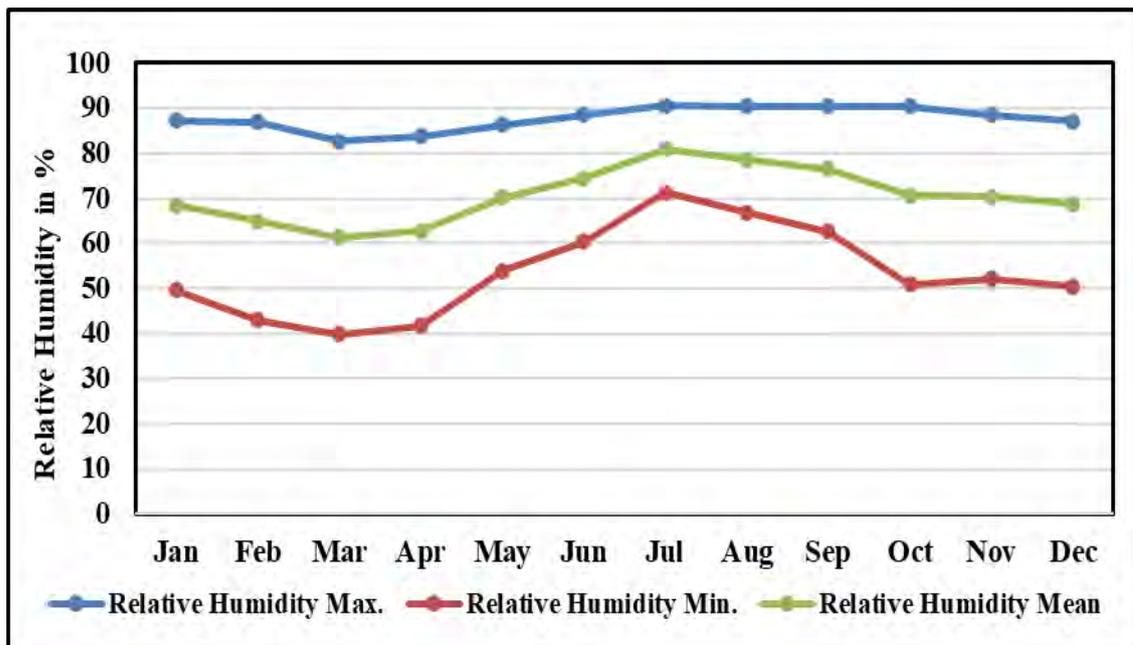


Figure 2.7 Monthly maximum, minimum and mean relative humidity of the study area, 2015

2.2.4.4 Sunshine hours

The average annual sunshine hours per day of the study area in 2015 is 2.52 hours per day and it varied from 5.01 hours per day in October to 0.30 hours per day in December. During the winter season in the study area the sunshine hours varied from 0.30 hours per day in December to 3.07 hours per day in February, whereas during the rainy season, it varied from 3.29 hours per day in June to 0.92 hours per day in July. Short length of sunshine hours in the study area is recorded during December, January and July. In the month of December and January it is due to the foggy weather condition and in the month of July it is due to the massive rains occurred by the south-west monsoon. Little visibility of the study area has occurred in these months. But, the months during pre-monsoonal season have a decent sunshine hour in the study area.

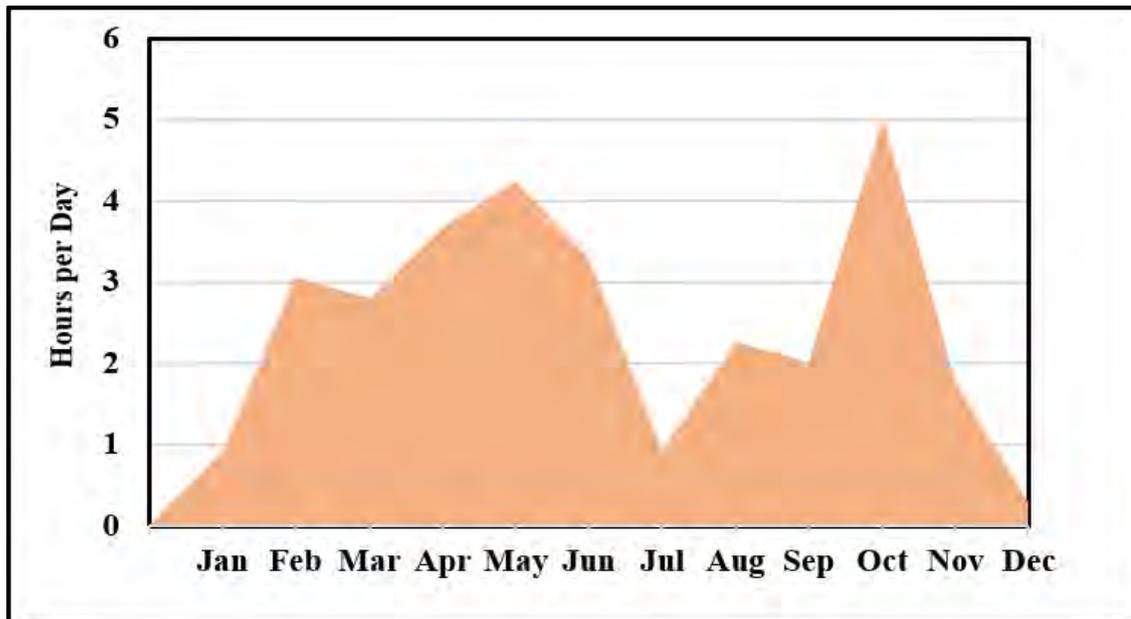


Figure 2.8 Sunshine hours per day of the study area, 2015

2.2.5 Soil

Sikkim being a fragment of the Himalayas has a diverse type of soil. Due to non-appearance of regular and organised survey, very slight is therefore known about the soils of the region (Gajbhiye et al., 2003). Here, soils of this State in general, are imitative from sedimentary and metamorphic rocks; as a result, they are loose in structure, thin and light in texture (Gajbhiye et al., 2003).

Soil is the product of interaction among the five forming factors, viz., parent material, climate, vegetation, topography and time (De and Ghosh, 2013). As Sikkim experiences a wide variation of physiographic and vegetation conditions, the composition of soil differs from place to place. The texture, wideness and fruitfulness of the soil are influenced by the incline of soil, climate and vegetal cover (Subba, 2009). On the whole, the texture of the soil of the region is loamy sand to clay loam with variable number of coarse segments (Debnath et al., 2012). On an average the soil depth at hill slopes varies from 60 to 90 cms. Sikkim being a hilly area has an acidic type of soil reaction with high organic matter content (mostly 2 to 5 per cent) (Sharma et al., 2016). Which is better for cultivation and also another attraction of agricultural migrant workers.

The higher areas, which are under the influence of snow or moving ice, are covered by fluvio-glacial soils, while in the glaciated area boulders, clay and outwash soils are found. Near the snow line soil is immature (Martin et al., 1993).

Table 2.5 shows the classification of soil in the study area. There are thirteen types of soils found in the study area. Fine loamy mixed soil, coarse loamy ever fragmented soil covered an area of 355.44 sq. km. (21.21%) which is found in southern and parts of the central zone in the study area. Coarse loamy excessive drainage weak soil structure soil is found in the western, central and eastern parts in the study area, it covers 44.45 sq. km (2.65%) of the study area. Coarse loamy excessive drainage stony soil and fine & mixed loamy soil covered maximum area. It covers 380.45 sq. km. (22.70%) of the study area and is found in the southern, western and central parts of the area. Coarse loamy excessive drainage rocky valley fill soil is found in the western, southern and central parts of the area. It covers 193.46 sq. km (11.54%) area. Coarse loamy cemented soil, loamy skeletal inclusive rocky surface covers an area of 157.12 sq. km (9.38%) and found in the area of the marginal eastern part. Fine loamy weak and mixed soil and Loamy skeletal weathered soil and coarse loamy rocky surface cover 137.05 sq.km (8.18%) and 130.25 sq. km. (7.77%) respectively. These soils are found in the mid central part and marginal southern part of the study area. Other soils of the area are Loamy skeletal excessive drainage soil and coarse loamy weak soil Loamy skeletal with moraines and boulders; Coarse loamy sandy deep soil, excessive drainage loamy skeletal soil; Coarse loamy very shallow soil, loamy skeletal rocky outcrop; Fine loamy stoniness soil and loamy skeletal excessive drainage soil. These soils are found over all the parts of the study area dispersedly (Figure 2.9).

Table 2.5 Classification of soil in the study area

SL No.	Soil type	Area in sq. km	Percentage
1	Fine loamy mixed soil, coarse loamy ever fragmental soil	355.44	21.21
2	Coarse loamy excessive drainage weak soil structure soil	44.45	2.65
3	Loamy skeletal excessive drainage soil coarse loamy weak soil	24.37	1.45
4	Loamy skeletal with moraines and boulders	58.57	3.49
5	Coarse loamy excessive drainage stony soil, fine & mixed loamy soil	380.45	22.70
6	Coarse loamy sandy deep soil, excessive drainage loamy skeletal soil	20.14	1.20
7	Coarse loamy shallow & cemented rocky soil	46.20	2.76
8	Coarse loamy very shallow soil, loamy skeletal rocky outcrop	88.67	5.29
9	Coarse loamy excessive drainage rocky valley fill soil	193.46	11.54
10	Fine loamy stoniness soil, loamy skeletal excessive drainage soil	39.72	2.37
11	Fine loamy weak and mixed soil	137.05	8.18
12	Loamy skeletal weathered soil, coarse loamy rocky surface	130.25	7.77
13	Coarse loamy cemented soil, loamy skeletal inclusive rocky surface	157.12	9.38

Source: *Natural resource Atlas of Sikkim—soil spatial information, 2006*

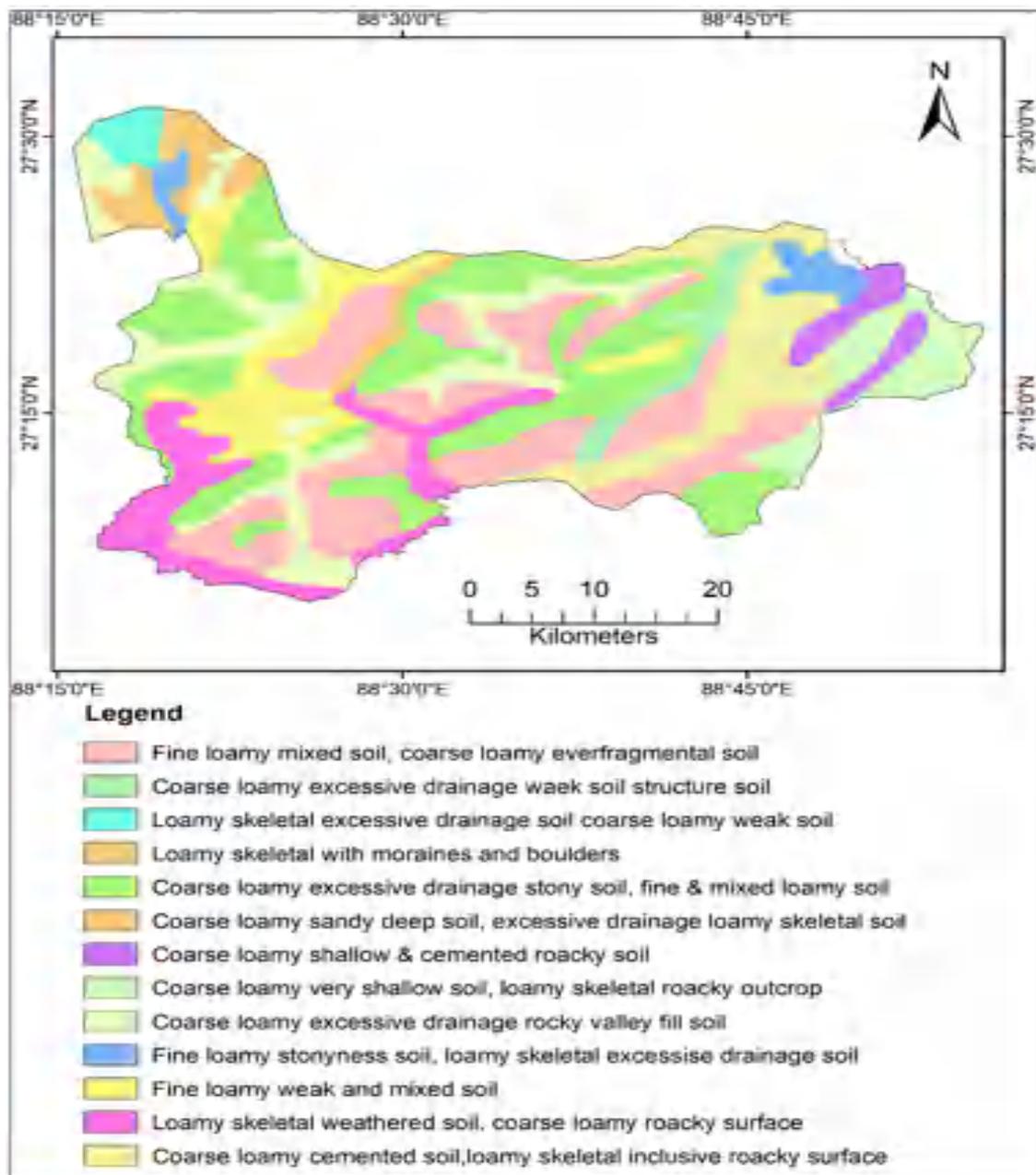


Figure 2.9 Soil cover map of the study area

2.2.6 Vegetation

Sikkim is a part of the Indo-Burmese biodiversity hotspot and has unique geographical features having wide range in altitude, high precipitation, etc., which make it home to a rich diversity of flora and fauna from tropical region to arctic region differing from valley to valley (Rai and Rai, 1994). The state has 46% of its total geographical area under the forest cover and the study area has more than 75% of vegetal cover. There is a record of over 450 tree species, 36 species of rhododendrons, 500 species of medicinal plants, 523 orchid species, 362 species of fern and its allies, 8 tree fern

species, 11 oak species, 16 conifer species, 23 bamboo species, 60 primula species and 150 species of wild edible plants in the state (Rai and Rai, 1994). Sikkim is famous for its orchids and rhododendrons; it occupies 72% of the rhododendron species of the country. For having various potential biological resources, Sikkim offers greater possibilities for nature-based initiatives to people (Badola and Aitken, 2010).

The major factors controlling the vegetation of the state are: (Biswas, 1967)

- ❖ Climatic conditions such as temperature, rainfall, soil, humidity and moisture.
- ❖ Relief including steepness of slope, terrain etc.
- ❖ Geology such as rock structure, morphology, rock formation and property of porosity, permeability, softness and hardness.
- ❖ Latitudinal and altitudinal variation.
- ❖ Soil fertility, soil nutrients, and its chemical composition.

In terms of vegetation the state is very high in both luxuriance and diversity. The important genera and species of gymnosperms in the state are *Pinus*, *Psunga*, *Abies*, *Yeas*, *Larix* and *Junipers* (Tambe and Rawat, 2010). The dominant flowering plants are *Rosaceae*, *Graminae*, *Rubiaceae*, *Labiatae* and *Orchdiceae* (Singh and Chauhan, 1997). The vegetation of the state can be classified according to altitudinal variation (Forest and Environmental Department, Govt. of Sikkim, 2018).

The following table shows the classification of vegetation on the basis of altitudes.

Table 2.6 Classification of Vegetation on the basis of altitude

Sl. No.	Zones	Altitude
1	Tropical	Upto 800 m above Mean sea level
2	Sub-tropical	From 800 – 1500 m above Mean sea level
2	Temperate	From 1500 – 3500 m above Mean sea level
3	Alpine	Above 3500 m above Mean sea level

Sources- Sikkim, A Statistical Profile 2006-07.

Table 2.7 shows that 982 sq. km. area is under dense forest which is 58.65% of the study area. whereas, sparse vegetation covers an area of 298.37 sq. km. (17.80%). Barren land and snow cover occupied 376.14 sq. km. (22.44%) and water body covered 18.46 sq. km. which is only 1.10% of the study area. Most of the study area has dense vegetal cover in all over the area. Sparse vegetation is found in the marginal eastern and western parts of the study area. Barren land and snow occupied the area near eastern and north-western boundary of the study area. Availability of water bodies is found in far marginal north-eastern and north-western parts of the study area.

Table 2.7 NDVI value and Class type

SL No.	Landsat 8 OLI/TIRS	Class type	Pixels	Area in sq km	Percentage
1	-0.19 to 0.0	Water body	20514	18.46	1.10
2	0.0 to 0.18	Barren land, snow cover	417931	376.14	22.44
3	0.18 to 0.3	Sparse Vegetation	331520	298.37	17.80
4	0.3 - 0.61	Dense Vegetation	109213	982.92	58.65

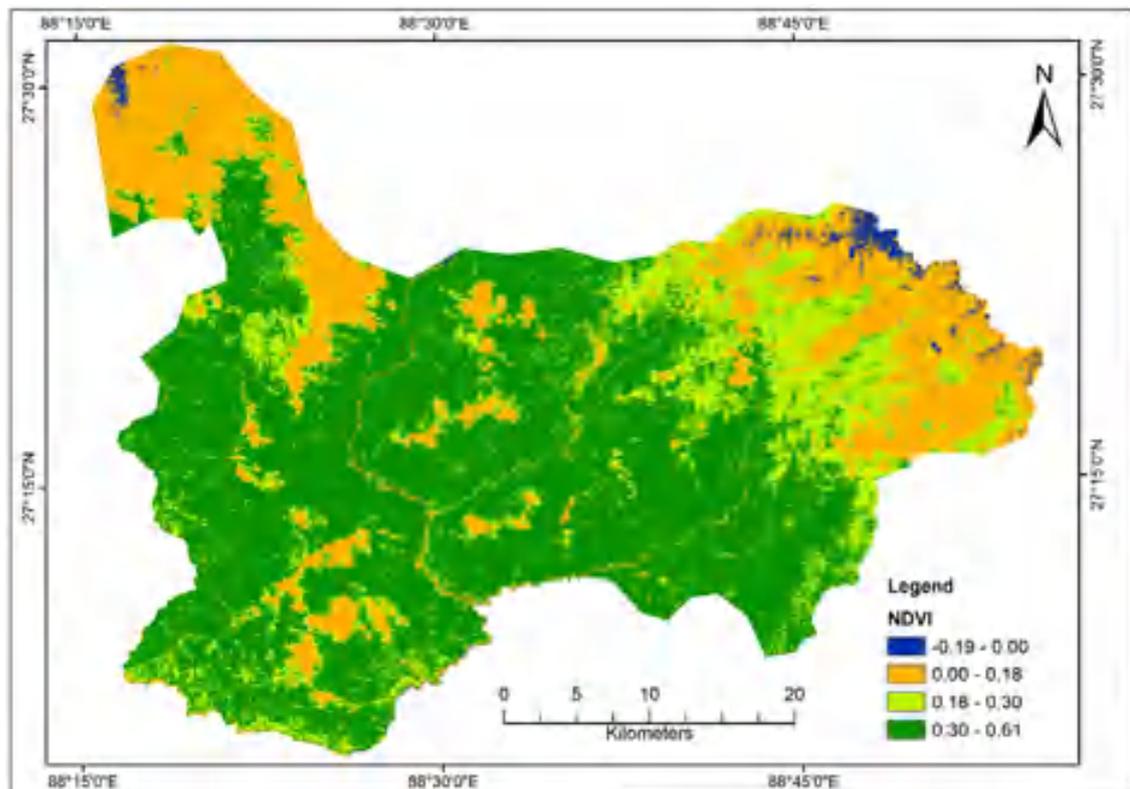


Figure 2.10 Vegetation cover of the study area

2.5 Socio-Cultural Characteristics

2.5.1 Population of Sikkim – An overview

Sikkim has recorded a total population of 610577, which amounts to 0.05% of the total population of the country. It occupies 0.22% of the total geographical area of India. The total population of Sikkim in 1891 was recorded at 30468, which grew up upto 610577 in 2011. The annual growth rate of India records 1.81%, which is higher than Sikkim during 2001-2011, which is 1.24%. The sex ratio has considerably reduced from 912 females per thousand males in 1891 to 889 in 2011. Literacy rate of the state is 81.42%

which is higher than the national average. The rate of urbanization is very high, which grew to 25.15% in 2011 from 11.11% in 2001(Census of India, 2001 & 2011).

Table 2.8 Total Population of the study area at each census from 1971 to 2011

Year	South			East		
	Total	Rural	Urban	Total	Rural	Urban
1971	53185	51963	1222	85621	68602	17019
1981	75976	70611	5365	138762	95520	43242
1991	98604	96035	2569	178452	146580	31872
2001	131525	127579	3946	245040	192188	52852
2011	146850	125651	21199	283583	161096	122487

Source: Census of India, 1971 to 2011

Sikkim has recorded 20 times growth of population from 1891-2011. For the last three decades rapid growth has taken place. State population alarmingly went up to 610577 in 2011. The natural increase however is not accelerated with growth. The rapid rate of growth is due to influx but birth and death rates have been reduced in the year 1981. Birth rate was 31.0 per thousand in 1981, which was reduced to 24.3 per thousand in 1991, then from 22.1 to 17.4 per thousand respectively during the decade 2001 - 2011. The high growth rate recorded during the decade 1971-1981 may be attributed to its merger in Indian Union. The district level decadal variation shows rapid expansion in population in the eastern region, wherein the population of 85621 in 1971 suddenly went up 178452 in 1991 and 283583 in 2011. Same trend is followed in the south district where the population of 53185 in 1971 suddenly went up to 98604 in 1991 and 146850 in 2011(Table 2.8 & Figure 2.11).

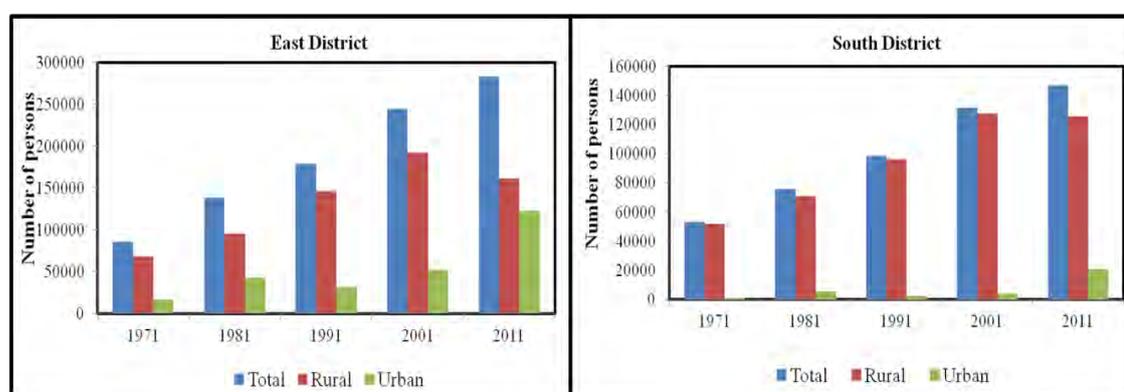


Figure 2.11 Total population of the study area (1971-2011)

2.5.2 Growth of Population

The population dynamics from 1891 to 2011 exhibit a growth of 20 times in Sikkim. It is mainly due to rapid natural growth of population and migration. For the past three decades there has been uncontrolled growth of population.

During the decade of 1971-1981 substantial increase at a rate of 5.07% per year was noticed in the urban areas. This could be mainly due to in-migration that took place after 1975 when a large number of job hunters poured into the state to work in various developmental activities like road constructions and hydro power projects etc. In the year 1981-1991 the population grew at a lower rate of 2.85% per year. However, in the year 1991-2001 growth rate was high at 3.29% per year (Table 2.9). This increase may not be the natural increase in population rather it could be due to in-migration to work in various developmental activities like road constructions and hydro power projects undertaken by the NHPC (Sharma and Pandey, 2017).

Table 2.9 Decadal growth of Sikkim and the Study area during 1971 - 2011

Decade	Sikkim	South	East
1971-81	50.77	62.07	42.85
1981-91	28.47	28.6	29.78
1991-01	33.06	37.31	33.39
2001-11	12.89	15.73	11.65

Source: Directorate of Economics, Statistics, Monitoring & Evaluation, Govt. of Sikkim (1971-2011)

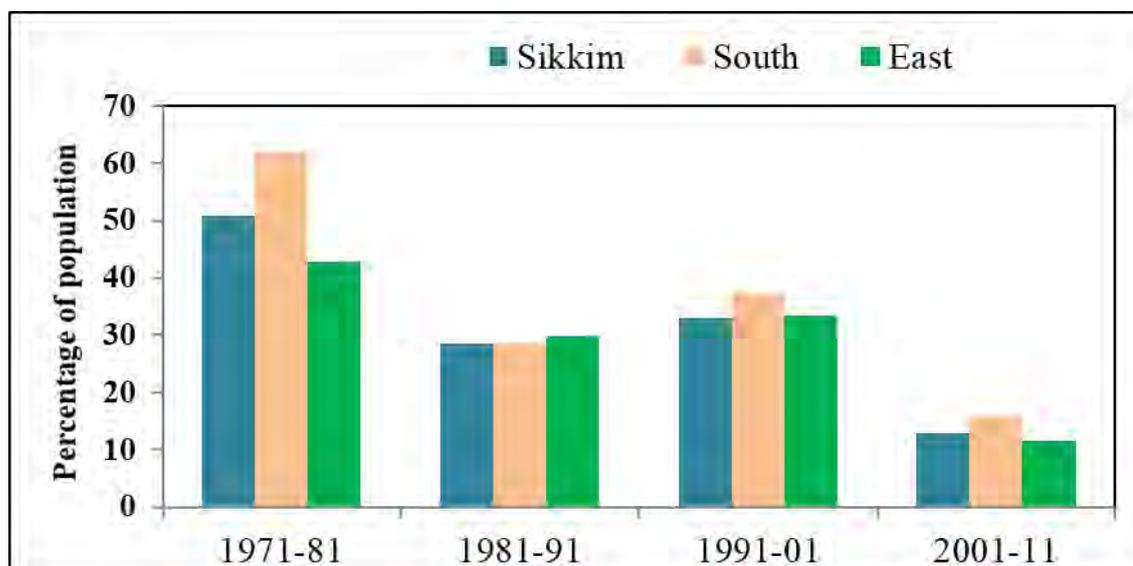


Figure 2.12 Decadal growth of population (1971-2011)

2.5.3 Distribution of Population

According to the 2011 census, the total population of the state of Sikkim is 610,577 which is 43,709 in the North District, 136,435 in the West District, 146,850 in the South District and 263,583 in the East District (Census of India, 2011).

Of this total population, 74.85% of the state population lives in rural areas and 25.15% of the state's population lives in urban areas (Census of India, 2011). In case of districts' distribution, in the South district, 85.56% of the population lives in rural areas and the remaining 14.44% live in the towns of Namchi (MC) and Jorethang (NP). Similarly, 56.81% of the population in the East District live in rural areas and 43.19% in urban areas in Gangtok (MC), Singtam (NP), Rangpo (NP) and Renak (CT). The high percentage of urban population in the East district caused by the four urban centres, (including Census Town) which are belong to East district. During the decade of 2001-2011, the rural and urban population grew by -4.99% and 156.52% respectively (Census of India, 2011).

With the exclusion of 51 forest blocks or villages of the state, out of 400 revenue blocks or villages, 136 are in the South district and 107 are in the East district. In addition to the revenue block, there are 51 forest blocks of which 2 (50.96%) are uninhabited. According to the definition of Census Town in the census of 2011, there are 34 large Revenue Blocks having above 2000 population of which 7 are in the South district and 13 are in the East district. There are only 3 Revenue Blocks which have a population above 5,000 and they fall in the East district only (Census of India, 2011).

2.5.4 Decadal changes of population

Decadal changes of population in the study area and also in the state have a peculiar scenario. During the decade 2001 – 2011, the decadal growth rate of the state is 12.9%, but in urban areas of the state it is 156.5%, whereas in rural areas it is -5.0%. On the other hand, in the East district, decadal variation of population during 2001 – 2011 is 11.7, while it is 131.8% in the urban areas of the district and -16.2% in the rural areas. Decadal variation in the South district of Sikkim has dramatically changed during 2001 – 2011 (Table 2.10). In the urban areas of the district, the percentage of decadal variation is 437.2% over the decade 2001 – 2011. So, it reveals that the massive population growth in the urban areas of the study area as well as in the state is the cause

of in-migration. High density of population in the urban areas of the study area is mainly due to the influx of in-migrants into the study area.

Table 2.10 Decadal changes in the study area by residence, 2011

State / District	Population 2011			Percentage decadal change 2001-2011		
	Total	Rural	Urban	Total	Rural	Urban
Sikkim	610577	456999	153578	12.89	-5.0	156.5
South District	146850	125651	21199	11.65	-1.5	437.2
East District	283583	161096	122487	15.73	-16.2	131.8

Source: Census of India, 2001 & 2011

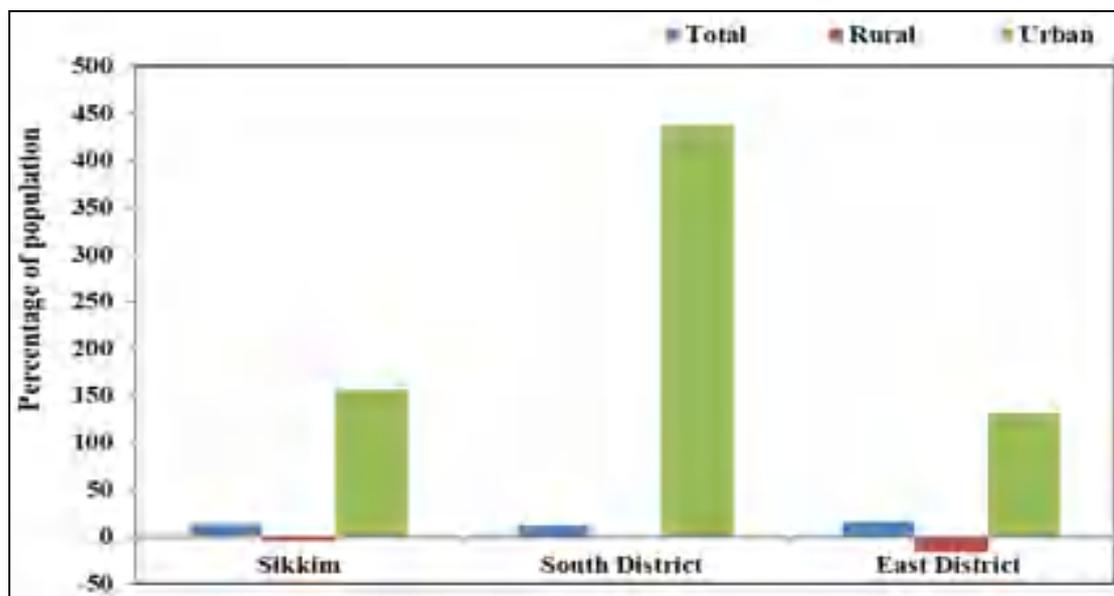


Figure 2.13 Decadal changes of the study by residence (2001-2011)

2.5.5 Density of Population:

The number of persons per sq. km estimates the density of population. The density of population in Sikkim is 86 persons per sq. km which is lower than the national average. The main features of the district showed that density in all the districts has gone up and highest density 297 persons per sq. km is recorded in East district followed by South and West districts which are 196 and 117 persons per sq. km. respectively (Figure 2.14). North Sikkim exhibits 10 persons per sq. km. which could mainly be due to adverse climatic conditions characterized by forest and snow cover.

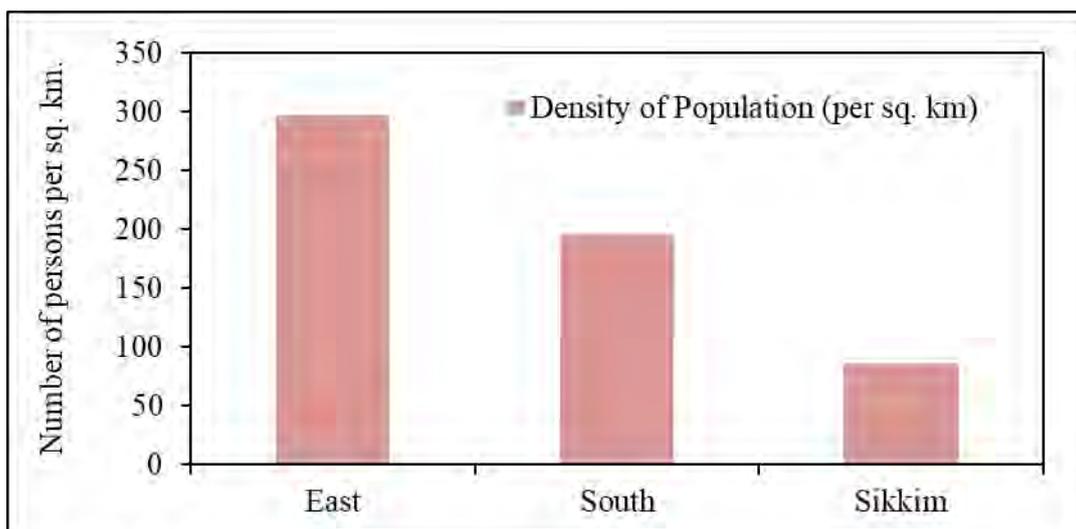


Figure 2.14 Density of population

2.5.6 Distribution of Schedule Caste and Scheduled Tribe population

Distribution of the scheduled caste and scheduled tribe population of Sikkim has a great disparity. Scheduled caste population of Sikkim occupies only 4.6% of the total population; in rural areas it is 4.4% and in urban areas it is 5.2%. Distribution of Schedule Caste population of the state occupies only 4.5% and 4.8% of male and female population respectively (Table 2.11). Schedule Tribe plays an important role in the state. 33.80% population is scheduled tribe population in the state. In the urban areas of the state it is 25.5%, whereas in rural areas 36.60% population belongs to the Scheduled Tribe population. Among the total population of the state 32.60% of the population are male and 35.20% of the state population are female (Figure 2.15).

Table 2.11 Distribution of Schedule Caste and Schedule Tribe population of Sikkim by Sex and residence

Social group	Particulars	Number of persons		
		Total	Rural	Urban
Schedule Caste	Persons	28275	20335	7940
	Male	14454	10496	3958
	Female	13821	9839	3982
Schedule Tribe	Persons	206360	167146	39214
	Male	105261	86059	19202
	Female	101099	81087	20012

Source: Census of India, 2011

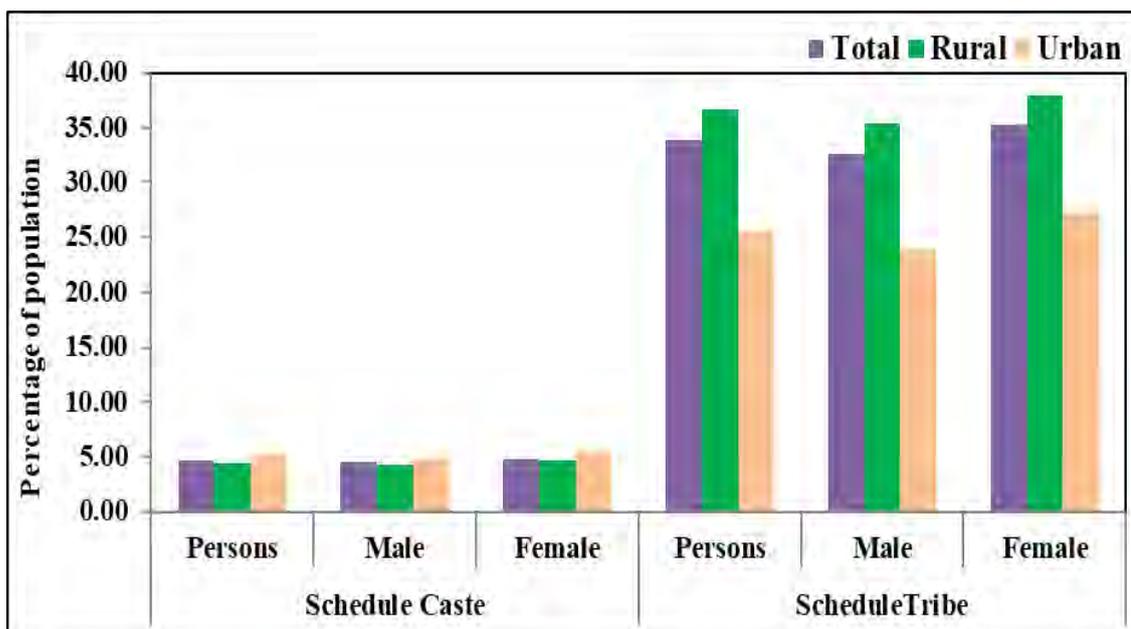


Figure 2.15 Distribution of Schedule Caste and Scheduled Tribe population

In East district of Sikkim, total scheduled caste population is only 5.4% and among them 5.11% is male and 5.72% is female population of the district. On the other hand, the Scheduled Tribe population of the district occupies 27.66% of the district's total population, out of which 26.07% is male population and 29.48% is female population of the district. About 4.12% of the total population in the South district is Schedule Caste, among which 3.99% is male and 4.27% is female population of the district. However, Schedule Tribe population occupies 28.19% of the total district's population, the sex break up being 28.12% male and 28.26% female population of the district (Table 2.11).

2.5.7 Sex Ratio

India has experienced ever declining sex ratio with the only exception years 1901-1911, 1911-1921 and 2001-2011. An uneven sex ratio is recorded in Sikkim. The sex ratio of Sikkim is 890 in 2011 which has slightly increased from 875 in 2001. The district wise sex ratio reveals the record increase of sex ratio in the East district, from 797 in 1981 to 859 in 1991 and from 844 in 2001 to 872 in 2011; South district of Sikkim has recorded slight decline in sex ratio from 909 in 1971 to 854 in 1981 and from 927 in 2001 to 915 in 2011 (Table 2.12). It's mainly due to the more female migrant workers working in the agricultural activities in the south district.

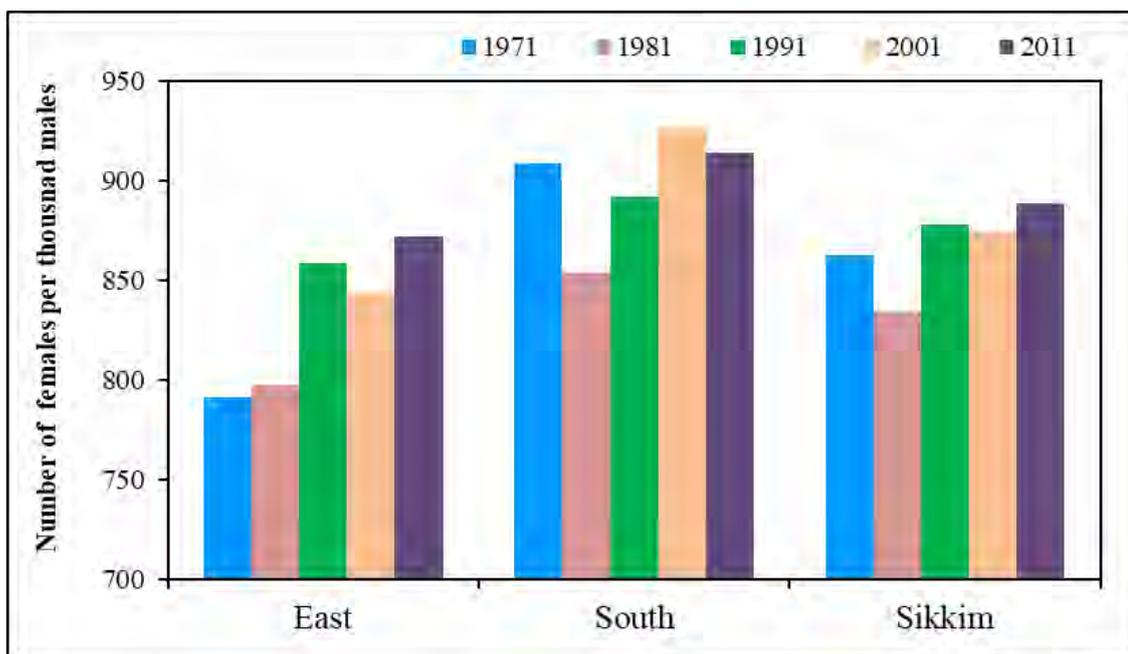


Figure 2.16 Sex ratio of the study area (1971-2011)

Table 2.12 Sex-Ratio for State and the study area: 1971-2011

Sl. No.	Districts	Sex-Ratio (Number of Females per thousand Males)				
		1971	1981	1991	2001	2011
1	East	791	797	859	844	872
2	South	909	854	892	927	914
3	Sikkim	863	835	878	875	889

Source: Census of India, 1971 - 2011

2.5.8 Education

Progress and development of a nation depend on the total number of literates contributing to productive human resources.

Table 2.13 Literacy of Sikkim and the study area, 2011

District/ State	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
East	67501	48390	115891	53844	44594	98438	121345	92984	214329
South	50339	39427	89766	9018	7957	16975	59357	47384	106741
Sikkim	184245	137685	321930	67024	55998	123022	251269	193683	444952

Source: Census of India, 2011

*Literacy rate is the percentage of literates to the total population aged 7 years and above.

The state has 81.42% literates in 2011 which reveals the trend of increase in 1981, 1991 and 2001. The percentage of increase was 22.20%, 46.76% and 69.68% respectively.

The literates in urban centres constitute 84.82% which has increased from 69.85 % and the number of literates in rural areas constitutes 67.67% which subsequently increased from 44.14%. It is revealed that the highest literacy rate is recorded in the East district with 83.85% followed by the South district with 81.42%. Gender wise rate of literacy in Sikkim as well as in the study area is in a far better position. 86.55% and 75.61% among the males and females are literate respectively in the state. 88.47% of males population and 78.5% of females population are literates in the East district, whereas 86.52% of males and 75.82% of females population are literates in the South district (Figure 2.17). High urban and rural literacy rate of the study area as well as the state plays a significant role in the education system and socio-economic development (Table 2.13). Sikkim is positioned better than the national standard in rates of literacy in all the categories.

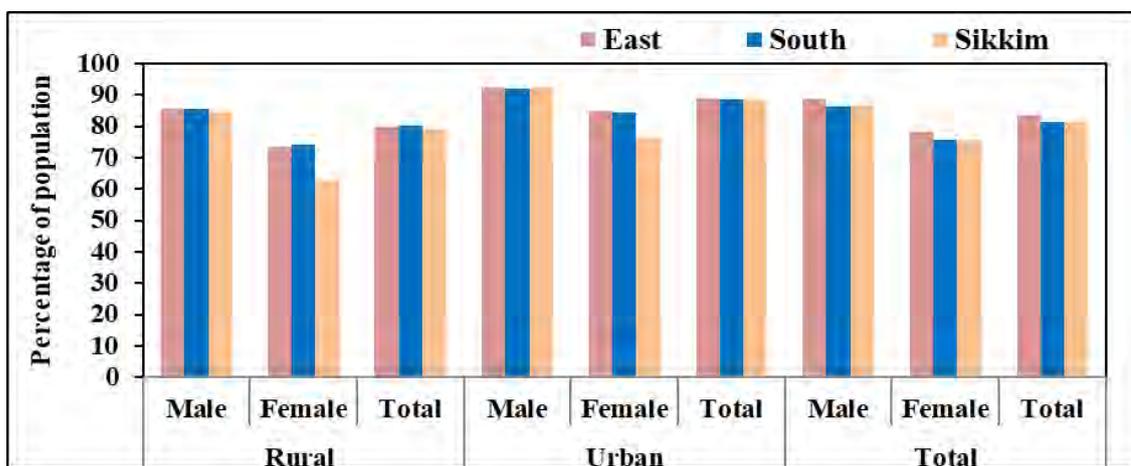


Figure 2.17 Literacy rate of the study area

2.5.9 Occupational structure

The concept of occupational structure is associated with productivity, GDP and economic activities (Datt and Sundaram, 2017). It is an indicator of economic development of a state. The percentage and rate of workforce availability in a given region describe the degree of wellbeing of that region (Agarwal, 2009). Further quality of human resources and its economic importance also are the indicators of development (Grip et al., 1988). Occupational structure of a place may be distinguished as workers and non-workers; the workers can be further classified into main workers and the marginal workers (Chandna, 2006). A person who has worked for a period of 6 months or more is treated as a main worker and the one who has worked for a period of less than six months is a marginal worker. A non-worker is the one who has not worked for any of the above two periods (Maurya, 2014).

Table 2.14 Economic classification of population of Sikkim during 1981 - 2011

Sl. No.	Particulars	1981	1991	2001	2011
1	Population	316385	406457	540493	610577
2	Cultivators	88610	97834	131422	117401
3	Agricultural Labourers	4887	13793	16939	25986
4	Worker in Household Industry	1586	1309	3250	5143
5	Other Workers	52353	55785	111709	159608
6	Non-Workers	163571	237736	277173	302439

Source: Sikkim: a statistical journal, 2013

Note: 2, 3, 4, & 5 = Main + Marginal workers

There are some variations in the occupational structure of the workforce of Sikkim. During 1981 to 2011, the working population of Sikkim in different categories fluctuated in decade by decade. The cultivators, agricultural labourers, household industrial workers and other workers are the main and marginal workers. Table 2.14 shows the total workers along with different class and non-workers of Sikkim during the census 1981 to 2011. The working population of Sikkim in different categories has fluctuated in decade by decade and nature has changed from cultivators to other workers. It is the main reason for in-migrant workers in the study area.

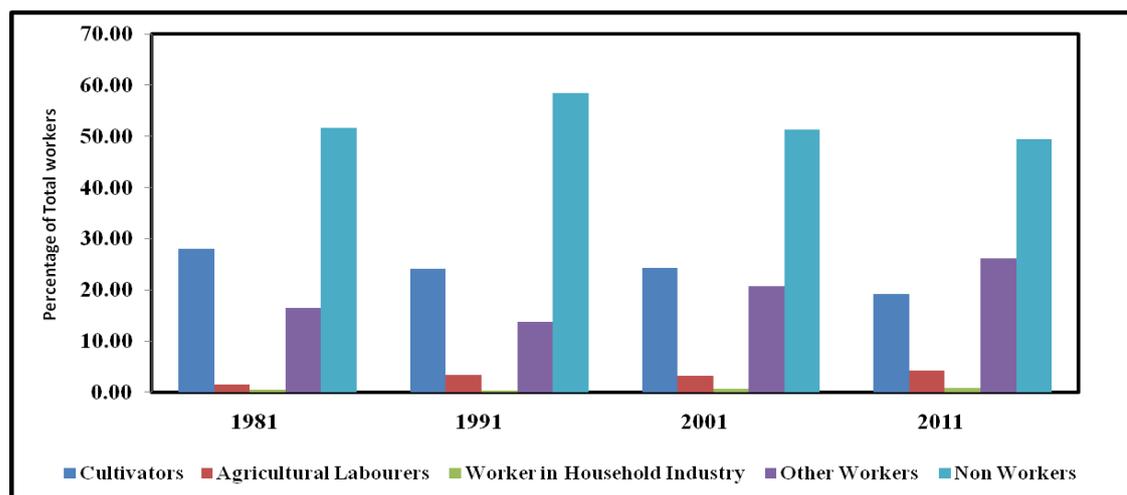


Figure 2.18 Economic classification of population of Sikkim

The total population of East district is 283583 of which 49.25% are working population, out of which 39.16% are main workers and 10.09% are marginal workers. On the other hand, the total population of South district is 146850 of which 50.9% are working population, out of which 34.66% are main workers and 16.24% are marginal workers (Table 2.15). It reveals that the percentage of workers in the East district is below fifty percent which is also below the state average, whereas in the South district

workers are more than fifty percent and also above the state average, which indicates the unemployment is one of the main issues in the East district.

Table 2.15 Distribution of workers and non-workers of the study area, 2011

District/ State	Main Workers		Marginal Workers		Non-workers		Total Population
	Number	%	Number	%	Number	%	
East district	111058	39.16	28620	10.09	143905	50.75	283583
South district	50898	34.66	23855	16.24	72097	49.10	146850
Sikkim	230397	37.73	77741	12.73	302439	49.53	610577

Source: Census of India, 2011



Figure 2.19 Distribution of workers and non-workers

Table 2.16 Distribution of population over different categories of worker in the study area, 2011

District/ State	Total Workers (TW)		Class of total workers							
			Cultivators		Agricultural laboureres		Household Ind. Workers		Other workers	
	Number	%	Number	% to TW	Number	% to TW	Number	% to TW	Number	% to TW
East	139678	49.25	31489	22.54	11483	8.22	2404	1.72	94302	67.51
South	74753	50.9	37802	50.57	4188	5.6	1004	1.34	31759	42.49
Sikkim	308138	50.47	117401	38.1	25986	8.43	5143	1.67	159608	51.8

Source: Census of India, 2011

Different categories of workers in the study area show a peculiar scenario in the occupational structure. Though Sikkim is a hilly state, there are problems faced by the cultivators, but the scenario of the South district reveals that agriculture is the mainstay of the district. Total workers of the South district are 74753 of which 57.17% constitute both cultivators and agricultural labourers, whereas, in the East district it is only 30.76% among the total working population of 139678. The East district of the state

has 67.51% workers who are engaged in other sectors of the economy, whereas in the South district it is 42.49%. As compared to the state, the cultivation sector is more developed in the South district, but in the East district it is below the state average (Table 2.16).

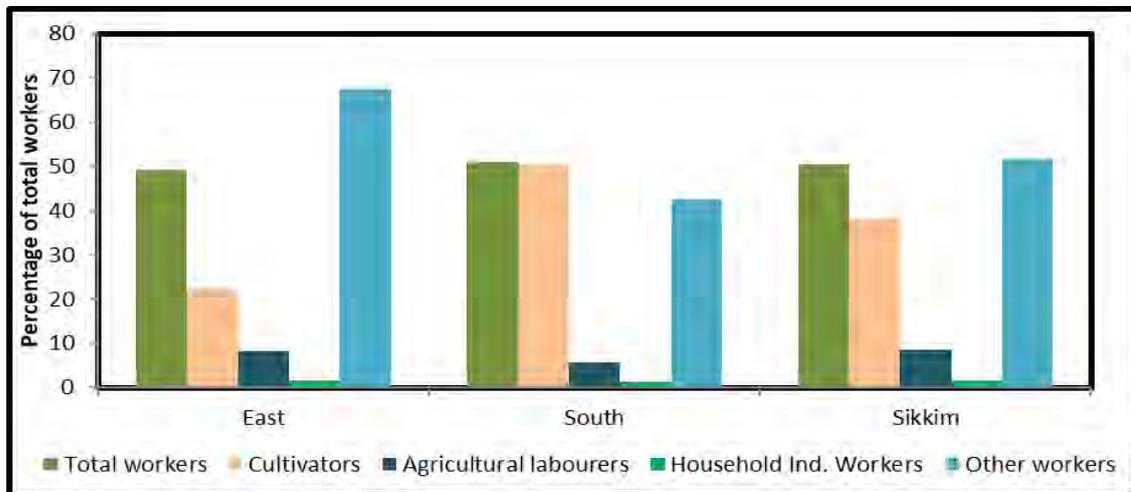


Figure 2.20 Categories of workers in the study area

2.5.10 Ethnicity

The study of specific communities reveals that the developmental activities take place in accordance with their prevailing indigenous knowledge system (Schelling, 1975). An attempt has been made to elucidate the socio-cultural set up of the three communities in Sikkim. Ethnic variations are guided by religious philosophy of an individual. Some communities are nature worshippers and their guardian deities are rivers, mountains etc. that help preserve the mountain environment to a great extent.

2.5.10.1 The Lepchas

"*Rongkup*", denotes *the son of the snowy peak* called by The Lepchas themselves are the indigenous settlers of Sikkim (Gurung, 2011). Anthropologists and historians are still debating regarding the origin of the Lepchas, whether they are belonging to the Naga tribes or are linking with the *Jimdars* and *Mech* (Thapa, 2002). Some academicians have found few likeness between the Lepchas and the tribes in Arunachal Pradesh. However, some others argued that they are associated to the Khasis in Meghalaya (Bhutia, 2015). Lepchas dominated Sikkim around 1425 A.D. (Sinha, 1975). The King of Lepcha society is well known as *Panu* (Dahal, 1984). The Lepchas themselves are convinced that their home has usually been the mythical kingdom of *Mayel* in the region of Mt. Kangchendzonga (Gurung, 2011). In truth, most

Lepcha clans claim to have legendary connections with unique mountain peaks which they worship as their deity. Hence, the mountains Simvo, Siniolchu and Kangchendzonga locate prominence inside the Lepcha tradition (Subba, 2008).

The Lepchas have their personal language and script. The Lepcha language is one of the 11 respectable languages recognized by way of the Sikkim authorities and is taught as much as the high faculty stage. The Lepcha dances, songs and folk tales mirror a superb synthesis among guys and nature (Subba, 2008).

2.5.10.2 The Bhutias

The Bhutias are specially descendants of the early settlers in Sikkim from Tibet and Bhutan who accompanied the ancestors of the first Chogyal, Phuntsok Namgyal (Chhetri, 2010). The members of the previous Namgyal dynasty belong to this ethnic organization (Dahal, 1984). The early Bhutias had distinctive social training-nobility-the aristocracy and the quasi aristocracy – those belonging to the main Bhutia households who have been land holders and have been called Kazis- and the commoners (Shreatha, 2015).

Tibetan Buddhism played a unique function in shaping the Bhutia society. The monasteries and the priests are the pivot around whom their day by day lives revolve (Singh, 1993). Every family ritual, marriage, beginning, death ceremonies and agricultural rites are carried out through the monks from the Gompas which might be prominent in all the Bhutia and Lepcha villages (Subba, 2008). Just like the Lepchas and the Nepalese, the Bhutias love their "chang", the nearby brew. This instruction from fermented millet is served in bamboo boxes (Gurung, 1911).

It has come to be a critical a part of every Sikkimese ceremony, whether or now not spiritual or secular. The Bhutias are famous for their weaving, timber carving and the Thangka painting. The hand-woven rugs, carpets and blankets and the extremely good Thankas displayed in the state Handicraft Centre at Gangtok are evidence of this ability (Arora, 2006).

The critical festivals found with the aid of the Bhutia network consist of Losoong, Pang Lhabsol, Kagyat dance and Saga Dawa (Singh, 1993).

2.5.10.3 The Nepalese

The Nepalese community of Sikkim is itself a conglomeration of various ethnic organizations, some speakme their personal vernacular (Gurung, 2011). Nepali is the

lingua franca of all of the Sikkimese humans (Thapa, 2002). These ethnic groups may be more or less divided between the Tamangs, Limbus, Margars, Gurungs, Murmis, Rais and the Chhetris (Karan and Jenkins, 1963).

Most of the Nepalese are Hindus or Buddhists. a number of them have additionally adopted Christianity. The Hindu Nepali population of Sikkim follows the ethos which governs its opposite numbers someplace else within the country (Subba, 2008).

Each ethnic group among the Nepali community have been known for their courage and a large number of them have served as Indian armies. The major festivals of the Hindu Nepalese in Sikkim are *Makar Sankranti*, *Teohar*, *Dasain* and *Baisakh* (Sharma, 1983).

Sikkim is one of the non-violent states in the country and the ethnic groups with their different languages, dialects, cultural backgrounds stay in general harmony, symbolizing the essence of team spirit in range (Datta, 1992). Just like the rainbow with its stunning multi-coloured shades, the humans on this small Himalayan kingdom have set an example as to how unique ethnic organizations can coexist and mingle with each other in overall peace and tranquillity (Bhasin, 2002).

2.5.11 Health

Prior to its amalgamation with the Indian Union in 1975, Sikkim had only one major hospital - Gangtok Sir Tashi Namgyal Memorial (STNM) Hospital, which was established in 1917 with 50 beds and three doctors and later expanded with some special departments and increased with 330 beds in 2015 (Tamang et al., 2016). The disadvantage with the terrain, which increases the unit cost of service delivery, as well as the constraints of resources also have their impact on unhealthy targets in the state. The progress that has been made since consolidation is still commendable. It must be commended that only 0.04 per cent of the state budget resources were allocated for health in 1980, the allocation was increased to 0.43 per cent in 1990 and another 5 per cent in 1998 (Tamang et al., 2016). Since 1975, there has been considerable expansion of public health infrastructure. It has made Sikkim perhaps the only state in the country to achieve the national standard of establishing 1 primary health centre for 20,000 people and 1 PHSC for 3,000 people (Tamang et al., 2016).

Table 2.17 Number of Health institutions of Sikkim and study area

District/ State	East	South	Sikkim
Total Population	283583	146850	610577
State Referral Hospital	1	0	1
District Hospital	1	1	4
Community Health Centre	1	1	2
PHC	6	6	24
PHSC	48	39	147
District TB centre	2	1	5
Centre Referral Hospital	1	0	1
Total	60	48	184
Health Institution facilities per 10000 population	2.116	3.269	3.014

Source: Department of Health, Government of Sikkim, 2018

The state has established a well-functioning primary health care system through a network of two Community Health Centres, 24 Primary Health Centres and 147 Primary Health Sub centres. Health care provided in the study area is far appreciable. Only 1 State referral hospital (STNM Hospital) is located in the East district of the state. 1 District Hospital (DH) has been established in the East and South districts each. State has only 2 community health centres, which are located in the study area. Each district of the study area has 1 community health centre. Out of 24 Primary Health Centres (PHC) of the state both East and South districts have 6 PHCs each. Out of 147 Primary Health Sub Centre (PHSC) of Sikkim, East district of Sikkim has 48 PHSCs and South district of Sikkim has 39 PHSCs. Among the 5 District Tuberculosis Centres of the state, East and South districts of the state have 2 and 1 number of District Tuberculosis Centres respectively (Table 3.17). Health care in Sikkim is provided almost entirely by the public sector. Except for the Sikkim-Manipal Central Referral Hospital, this is developed at Tadong, Gangtok. It's only the health establishment in the state which developed under Public Private Partnership (PPP) and provides secondary and tertiary care (Department of Health, Govt. of Sikkim, 2019).

Health institution facilities among the citizens of the state are little better in position compared to the national average. Health institutions that are available in the

East district have a proportion of 2.12 per 10000 persons of the district. South district of Sikkim has 3.27 health institutions per 10000 population of the district, whereas in the state of Sikkim, the availability of the health institution is 3.01 per 10000 citizens of the state (Table 2.17).

Table 2.18 Availability of health facilities (bed) in different health institution of Sikkim and study area

District/ State	East	South	Sikkim
Total Population	283583	146850	610577
State Referral Hospital Bed	300	0	300
District Hospital Bed	100	100	400
Community Health Centre BED	30	30	60
PHC Bed	60	60	240
District TB centre Bed	15	30	55
Centre Referral Hospital Bed	500	0	500
Total	1005	220	1555
Health Institutions' Bed facilities per 10000 population	35.44	14.98	25.47

Source: Department of Health, Government of Sikkim, 2018

A total of 1555 hospital beds in the state are available including all the health institutions. Among these 1555 hospital beds of the state 1005 hospital beds are available in the East district of Sikkim and 220 hospital beds are available in the South district of the state. The Government of Sikkim is also constructing its own state-of-the-art tertiary care hospital, with over 575 beds. The hospital compound also houses a nursing college, AYUSH hospital, cancer care and rehabilitation centre within the premises.

Availability of beds in state health institutions is quite appreciable in the study area. In the East district of Sikkim, the availability of beds in the state institutions is far better than the other districts as well as the state. Availability of the beds in the health institutions is 35.44 per 10000 population of the district, whereas availability of beds in the health institutions of the South district of Sikkim is only 14.88 per 10000 population of the district, it is very poor in condition compared to the state average. The availability of the beds in the health institutions of the state is 25.47 per 10000 population of the state (Table 2.18).

Table 2.19 Allopathic and AYUSH doctors in position in Sikkim and study area

District/ State	East			South		Sikkim
Total Population	283583			146850		610577
Particulars	STNM	DH	PHC	DH	PHC	
Chief Consultants/ Specialists	77	16	4	18	3	139
Doctors	41	9	7	15	10	113
MO (Specialists) (Contractual)	0	1	0	3	0	6
MO (Contractual)	1	1	3	1	1	15
MO (AYUSH)	3	3	2	2	1	15
Total	122	30	16	39	15	288
District Total	168			54		
Doctors' facilities per 10000 population	5.920			3.680		4.717
Average no. of persons served by Doctors	1688			2719		2120

Source: Department of Health, Government of Sikkim, 2018

In the whole of Sikkim, 288 doctors are available for the public health service in the state including both Allopathic and AYUSH doctors along with specialists and others. Among the 288 doctors in the state, the East district has 168 doctors including STNM, DH and PHC, whereas the South district of the state has only 54 doctors in DH and PHC including Allopathic and AYUSH doctors. Among these doctors some have served the public health issue on the contractual basis.

The scenario of the doctors in Sikkim is not impressive in numbers. The state of Sikkim has 4.72 Government doctors for the per 10000 population of the state. But it is little better in the East district of Sikkim, which is 5.92 Government doctors per 10000 population of the district. On the other hand, in the South district, the availability of Government doctors is 3.68 per 10000 population of the district, which is far inadequate to the state average.

Average numbers of persons served by Government doctors are quite adorable in the state of Sikkim. As per Table 2.21, 1 Allopathic or AYUSH doctor served 2120 persons in the state. In the East district it is 1688, which is far ahead from the state figure. But, in the South district of Sikkim, the scenario of the health services by the Government doctors is inadequate to the state average, which is 2719 (Table 2.19).

It is found from the above discussion that the study area of the state is much better in position in terms of health facilities in the state. This is one of the main pull factors to attract migrants in the study area. Statistics reveal that in-migrants in the state are large in numbers and the rate of in-migration in the East district is high

followed by the South district of the state. Health infrastructure in the study area is one of the main reasons of in-migration.



Plate 2.1 Health facilities in the study area at a.Singtham b. Namchi c. Jorethang and d. Namchi

2.5.12 Land use

Like different hilly and mountainous areas, the query of land has been relevant to the political financial system of Sikkim, due to the fact it's far scarce and additionally because of historical elements (Rai et al., 1994). the first clinical survey of land in Sikkim changed into accomplished in 1950-58, the usage of the British dimension system of acres and miles. the second survey become accomplished in 1976-83 using a metric gadget of hectares and kilometres and the survey blanketed all the regions of the state (Bhutia, 1996).

Table 2.20 Land use Pattern of Sikkim in 1981 and 1991

Sl.No	Classification of land	1980-81		1990-91	
		Hectares	(%)*	Hectares	(%)*
1	Net Area Sown	78,381	11.04	63,254	8.91
2	Area under current fallow	4,428	0.62	3,906	0.55
3	Other uncultivated area excluding fallow land	4,560	0.64	10,830	1.53
4	Fallow other than current Fallow	9,474	1.34	9,204	1.30
5	Cultivated wasteland	681	0.01	9,807	1.38
6	Land not available for cultivation	11,604	1.64	14,300	2.02
Total		109,128	15.37	111,301	15.69

Source- Human Development Report 2001

* indicates the percentage distribution of different land use particulars.

The total geographical area is 709,600 hectares. The availability of land in under mentioned items in Table 2.20 in 1991 was 15.69% instead of 15.37% in 1981, there was 0.32% increase in availability of land in 1991. But there was decrease in net sown area under current fallow, other uncultivated area excluding fallow land and fallow land other than current fallow because of increase in population and cardamom farming in rural sector, somehow global warming is also responsible for the low snowfall in high altitudes which cause the decrease in net snowfall area. Due to the mountain region the heavy rainfall breaks the formation of step land by landslide which causes the availability of land for cultivation.

Table 2.21 District wise land use pattern of the study area for the year 2005-06

Sl. No.	Particulars	East (in hectare)	South (in hectare)	State (in hectare)
1	Irrigated	2532.14	2104.62	7643.23
2	Un-irrigated land	9475.46	15435.7	39304.5
3	Non-Agricultural Land	3277.15	2754.33	9766.67
4	Forest/Jungle/ Bushes	9112.07	2519.7	16448.9
5	Cardamom Field	3795.76	4515	19587.9
6	Grassland	1652.96	1209.11	4145.1
7	Barren Land	8178.6	2086.54	13817.3
8	Uncultivated Fallow Land	787.21	1003.67	3661.25
Total		38811.4	31628.7	114375

Source: Statistical Profile of Sikkim 2006-07

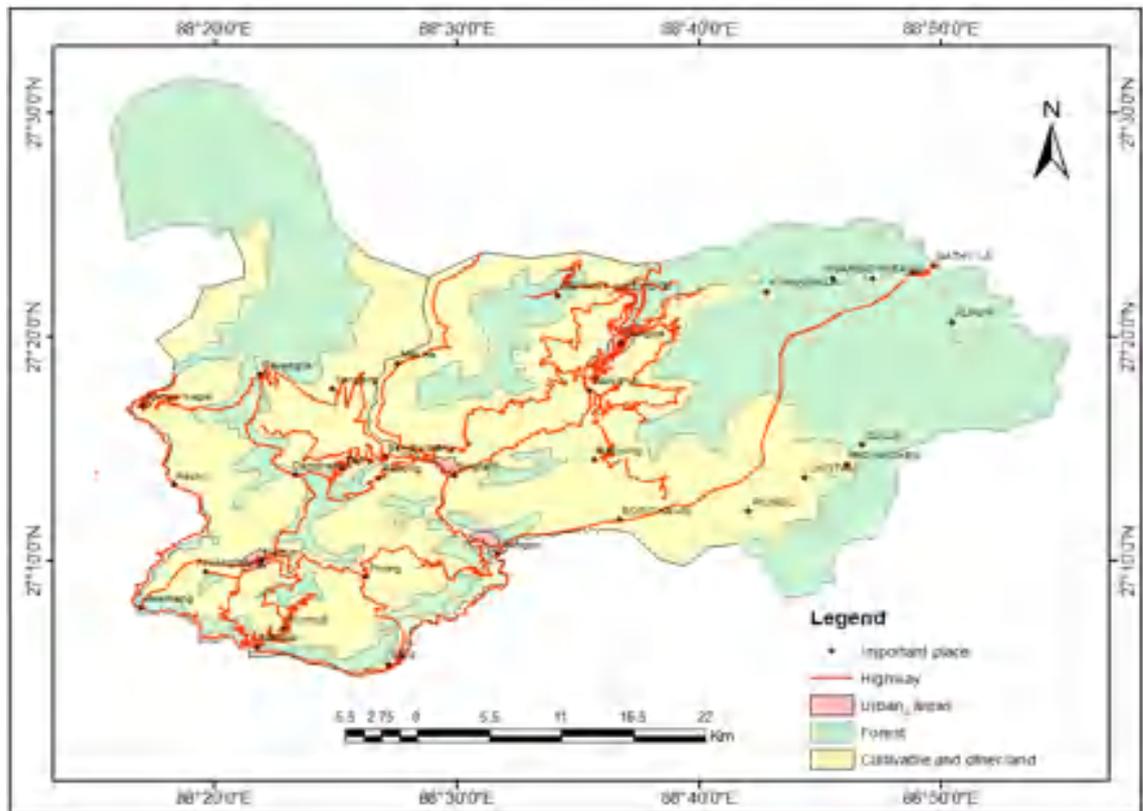


Figure 2.21 Land use map of the study area

According to Table 2.21, the total irrigated area of the state is 7643.23 hectares, while in the East district it is 2532.14 hectares and in the South district it is 2104.62 hectares. Due to mountainous topography of the state, total un-irrigated land is much more than the irrigated land. Total un-irrigated land in the state is 39304.5 hectares, whereas East district and South district occupied 9475.46 hectares and 15435.7 hectares respectively. The next item in the land use pattern is non-agricultural land, which is highest in the East district, this is because of heavy settlement in this district and the next reason is Gangtok which is the capital of the state. Gangtok is the landmark of the East district which pulls the people from different places for better life and for better employment and better education also which further lead to increase in urbanization. Migration is also one of the important reasons for the high non agriculture land. Increase in migration causes an increase in settlement so for that government tries to extend the urban centres that are responsible for low availability of agricultural land. In East and South districts of Sikkim the cultivation of cardamom is practiced by the villagers. The total area of 3795.76 hectares in East district and 4515 hectares in South district are used for the cultivation of cardamom. Migration is also one of the important

reasons for the high non agriculture land in the district. South district of the study area has more cultivable land as compared to the East district for large cultivation of cardamom which leads to in-migration as agricultural labourers in the area.

Maximum forest area is found in East district, which is 9112.07 hectares out of 16448.9 hectares of the state, whereas South district occupied only 2519.7 hectares under forest cover. Grassland, barren land and uncultivated fallow land are playing a significant role in the land use pattern of the study area (Table 2.21 & Figure 2.21).

2.5.13 Mines & Minerals

The country of Sikkim is host to possible assets of ores and minerals. Regardless of efforts of the branch of Mines and Geology, Government of Sikkim and Geological Survey of India, big areas of the nation nonetheless continue to be unexplored. From the 1960s into Nineteen Eighties, Geological Survey of India has conducted investigations for locating occurrences of base metallic in Sikkim and Darjeeling Himalayas (Bhasin and Bhasin, 1995). These days, inside the Himalayas of India, the simplest operating mine producing copper ores is located at Rangpo, Sikkim. a complete of 24 base metal occurrences are positioned in Sikkim (Soni and Kumar, 2002).

Distribution pattern of the regarded occurrences suggests that these are focused in 3 clusters, specifically (i) eastern zone, (ii) significant region and (iii) Western quarter. The maximum important occurrences inside the Japanese area are Rangpo, Pachekhani and Dikchu, positioned to the east of the river Teesta (Basu, 2013). Those deposits are especially strata certain, hosted by using the low-grade rocks of Gorubathan Formation. Inside the important zone lying between the Teesta river in the East and little Rangit river within the West some of occurrences are positioned to the East of Namchi (Basu, 2013). Inside the Western sector, a big wide variety of occurrences are positioned inside the Nayabazar region, many of which had been explored in the early part of the century by using Burn & Co. and in early 60's by GSI. Most of these occurrences are Quartz vein hosted now and aren't of any monetary significance (Basu, 2013). Availability of minerals also accelerate the in-migration as a mining worker in the study area.

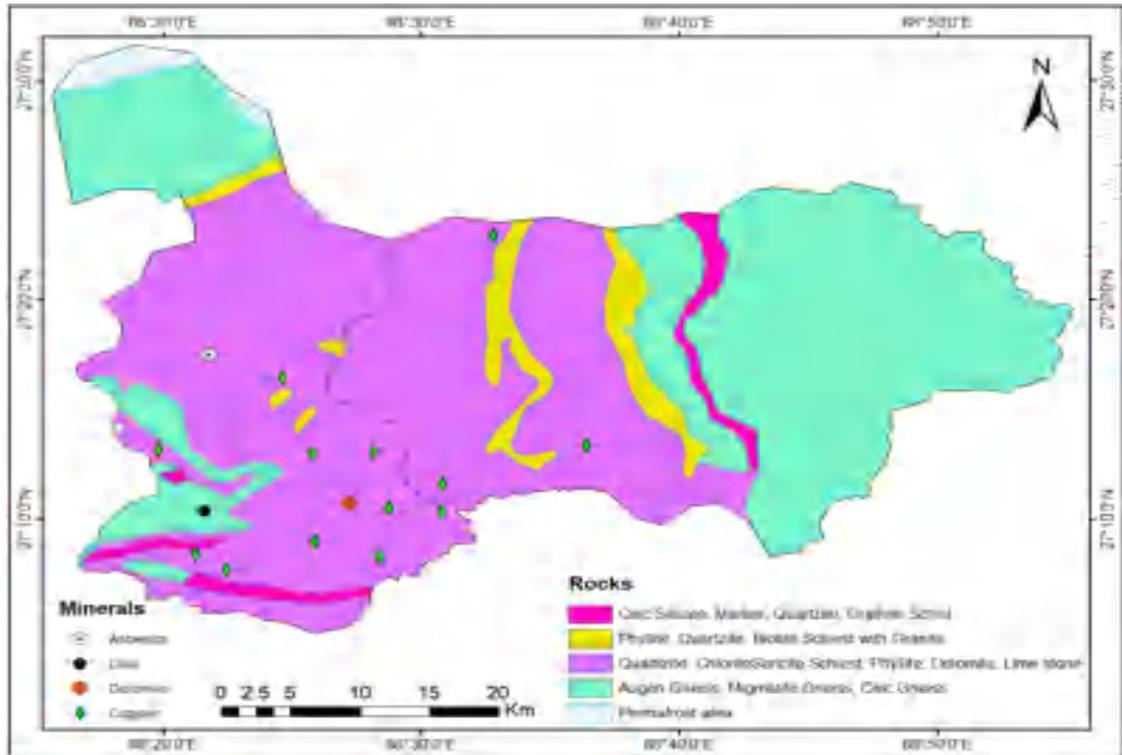


Figure 2.22 Rocks and minerals map the study area

Table 2.22 Locations of Mineral Resources of Sikkim, 2014

Sl. No.	Mineral	Location
1	Copper	Rangpo, Dikchu, Pachey-Khani, Rorathang, Jogdumb near Chakhung, Soreng, Namchi, etc.
2	Coal	Rangit river valley, Namchi area, Patkhola, Roathak Khola and Rinchinpong.
3	Dolomite	Rangit river valley at Rishi (West district) and Bhanjan (South Sikkim).
4	Graphite	Dareli-Chitrey (West district), Bhot near Chungthang (North district).
5	Lead & Zinc	Rangpo, Dikchu, Jugdam in East Sikkim.
6	Limestone	Rishi and Rangit river section, Rinchenpong and Changu.
7	Marble	West Tsango lake and near Chungthang
8	Iron	Bhotang
9	Garnet	Near Pachey-khani

Source: A report published by G.S.I. of Sikkim, 2014

2.5.14 Agriculture and Horticulture

About 80 percent of the population lives in rural Sikkim and agriculture plays a dominant role inside the kingdom financial system with the entire cultivable land through round 72870 hectares (Rahman et al., 2008). Agriculture within the kingdom of Sikkim is practiced under diverse conditions. The location is characterised through large variations in slopes, altitudes (300-3000 m above MSL) and rainfall (200-400 cm). The soil of the whole nation is acidic in nature. The agro-climatic elements have a large effect on the control and productiveness of the crop either in multiple cropping or under a mono-cropping mechanism (Subba, 1984). Moreover, the selection of crop is more often than not consumption oriented and a system of cultivation has hooked up in low input, low chance, low yield generation because the primitive varieties of agriculture is still most dominant (Rahman et al., 2008). Agricultural sports of the look at place appeal to greater in-migrants as agricultural labourers.

2.5.14.1 Cropping pattern

Table 2.23 Cropping pattern of Sikkim

Sl. No.	Altitudes	Zaid/ Pre kharif crops	Kharif crops	Rabi crops
1	1500 – 3000 ft.	Maize, Vegetables, Paddy	Paddy, Maize, Millet, Soybean, Other pulses	Wheat, Barley, Buckwheat, Rice-bean, vegetables
2	3000 – 5000 ft.	NA	Maize, Paddy, Soybean, Others pulses, finger millet	Wheat, Barley, Buckwheat, Rice-bean, Rape and Mustard
3	Above 5000 ft.	NA	NA	NA

Source: Department of Food Security & Agriculture Development, Government of Sikkim.

Table 2.23 shows the cropping pattern of the state in different climatic seasons along with different altitudes. The fundamental crops of the state are maize, rice and finger millet together with soybean raised as intercrops to begin with. Wheat, mustard, buckwheat and huge cardamom also are vital vegetation. Potato, radish, brinjal, tomato, beans, cow peas, rai, pea and gourd are the essential greens crops grown in the country. In latest years wheat crop has been delivered successfully within the double cropping system of rice-wheat rotation in Sikkim.

Table 2.24 District wise area in hectare (,000) under main crops of the study area

SI No.	Crop	East District	South District	Sikkim
1	Rice	4.91	2.1	11.16
2	Buck Wheat	1.17	1.46	3.63
3	Maize	9	14.31	39.93
4	Finger Millet	0.84	0.75	2.96
5	Buck Wheat	1.17	1.46	3.63
6	Pulses	0.76	3.07	6.3
7	Oilseeds	2.57	2.81	7.95

Source: Department of Food Security & Agriculture Development, Government of Sikkim.

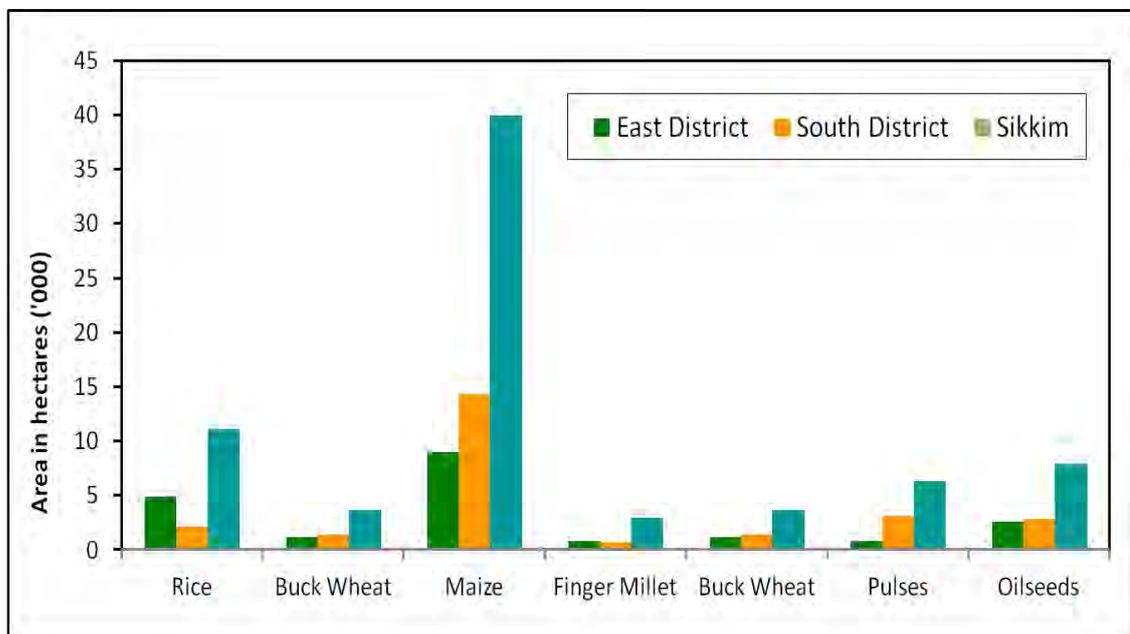


Figure 2.23 Area under different main crops

2.5.14.2 Crop combination of the study area

In the discipline of agricultural geography Weaver became the first Geographer who used (1954) numerical technique to illustrate the crop combination of the Middle West (U.S.A). In his strive for the demarcation of agricultural areas of the Middle West inside the U.S.A. Weaver based totally his evaluation on acreage figures. Weaver computed the percentage of overall harvested cropland engaged through every crop that held as tons as occupying 1% of the cropped vicinity for all of the possibly combination

within the constituent areal gadgets towards a hypothetical standard (Husain, 1996). This method is to be applied in the have a look at location to examine the agricultural regionalization.

2.5.14.2.1 Crop combination of the East district

Among the crops of the East district of the state 5 crops namely, maize, rice, oilseeds, finger millet and pulses occupied the percentage of cropping area over 1% of the district's total cropped area. So, by the using of Weaver's method of crop combination these crops are considered for the crop combination of the district.

After the analysis of the crop combination of the East district it is found that the minimum value of crop combination is 235.923 for the three-crop combination of the district. So, it is concluded that the district occupied by the three crops combination, which are maize, rice and oilseeds (Appendix B.1).

2.5.14.2.2 Crop combination of the South district

Among the crops of the East district of the state 5 crops namely, maize, pulses, oilseeds, rice and finger millet occupying the percentage of cropping area over 1% of the district total cropped area. So, by the using of Weaver's method of crop combination these crops are considered for the crop combination of the district.

After the analysis of the crop combination of the South district it is found that the minimum value of crop combination is 449.289 for the five-crop combination of the district. So, it is concluded that the district occupied by the five crops combination, which are maize, oilseeds, pulses, rice and finger millet (Appendix B.2).

Therefore, it is found from the result of crop combination that the South district has more potentiality in the field of agriculture as compare to East district and that is why South district has attracted more agricultural labourers as in-migrants in the district.

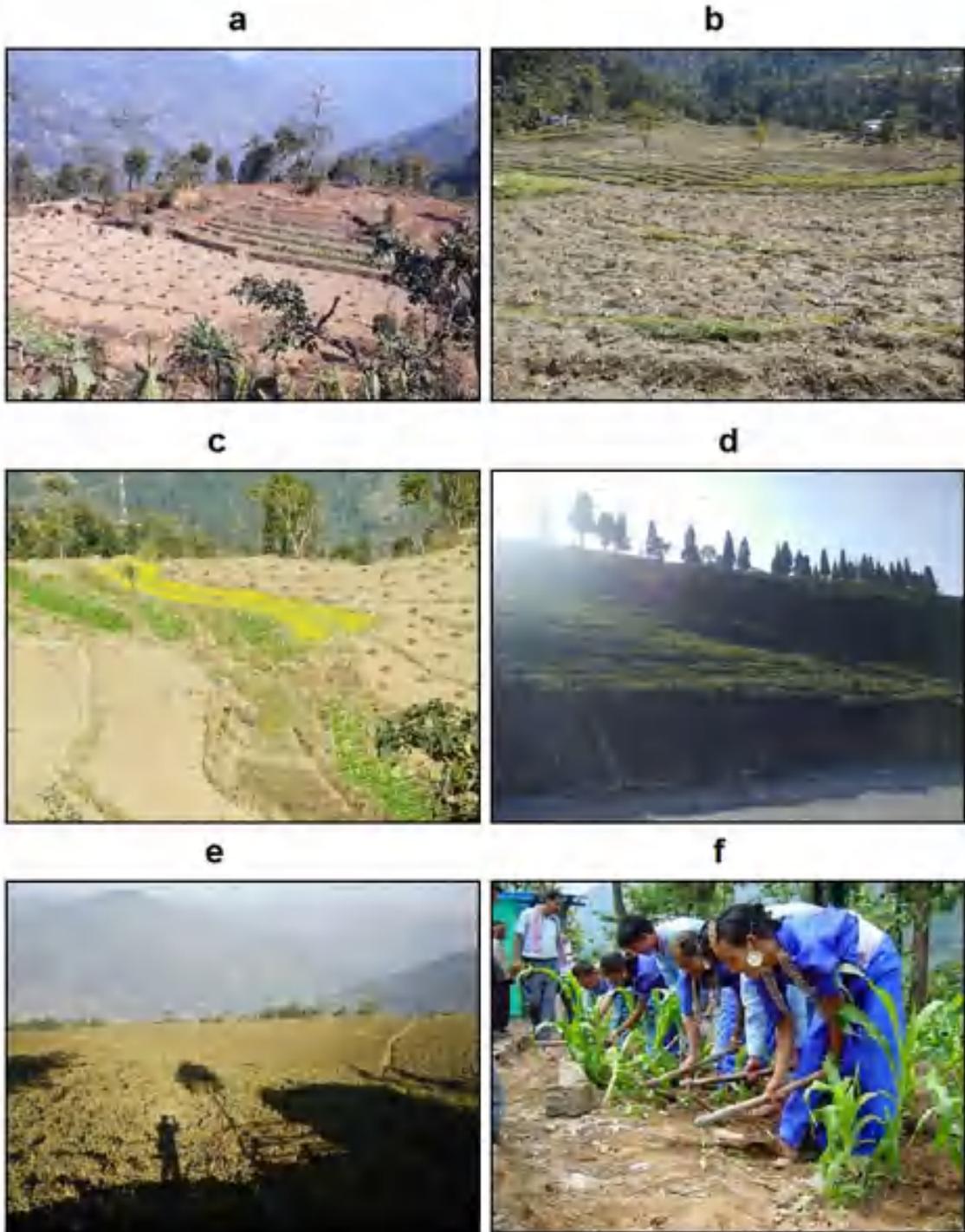


Plate 2.2 Agricultural activities in the study area a. b. and c. in East district
And d. e. and f. in South district

2.5.15 Irrigation

Sufficient supply of water is important for vegetable cultivation. There are two types of water supply in irrigation manner; the natural water supply which is directly dependent on rain and the artificial supply of water through channels (Sharma, 2008). In the hilly region most of the cultivated lands are dependent on natural supply of water through rain. In Sikkim, most of the *Kharif* and off-season vegetable crops do not require irrigation. Rain is sufficient to meet the water requirement of these crops, but an assured irrigation facility is essential for Rabi vegetable production (Subba, 1984). So, for this, the Department of Irrigation Government of Sikkim provides artificial supply of water through channels in possible areas. The East district of the state has more irrigated area (2532.14 hectare) as compared to other three districts; it is because the irrigated facility has flourished in a maximum level. The total irrigated land in the north is only 886.97 hectare which is the minimum area of the state as compared to other parts of the Sikkim. While in the south and west districts the total irrigated land is 2104.62 and 2119.5 hectare respectively. The maximum area which comes under the un-irrigated land is on south district followed by West, East and last one is north with 15435.74 hectare, 10433.45 hectare, 9475.46 hectare and 3959.84 hectare respectively (Irrigation and Flood control Department, Govt. of Sikkim, 2018). The artificial system of irrigation depends on the source of water within the considerable distance, from where the water should follow in sufficient manner. So, it may conclude that in state the main source of water, from where the water should channelize in artificial manner through channels for cultivation (Sharma, 2008).

2.5.16 Industries

In Sikkim, enterprise plays an essential function in the financial system of the kingdom. Sikkim has visible a notable growth within the industries inside the current years. Sikkim has now arisen as an industrial centre (Mishra and Kiranmai, 2007). Sikkim had lengthy been an agro-primarily based society, but situations modified very well inside the latest years. With the acceleration within the socio-political thing of the society of Sikkim, the increase of industry in Sikkim has been outstanding (Debnath, 2009). It is not worth that the increase within the industries of Sikkim is sultan effect of the continuous endeavour of the authorities of Sikkim. The department of Industries in

Sikkim is instrumental in bringing approximately a rapid increase within the industries of Sikkim (Joshi, 2004). The department of Industries has formulated certain regulations including Sikkim commercial advertising and Incentive (SIPI) Act, 2000 and its next Amendments in 2003 and 2007.

2.5.16.1 Industries of the East district

Industrial infrastructure of the district is in a far better position as compared to other districts of the state. There are some large and small-scale enterprises that have been established in recent decades. Large scale industries which are undertaken by public sector are much developed in recent years (Table 2.25).

Table 2.25 List of large-scale industries of the East district

Sl. No.	Category	Name of the Industries
1	Large Scale Industries	Alkem Laboratories Ltd.
2		CIPLA Ltd.
3		Epitome Petrochemicals (P) Ltd.
4		Golden Cross Pharmaceuticals (P) Ltd.
5		M/S Glenmark Pharmaceuticals Ltd.
6		M/S Intas Pharmaceuticals
7		Nextgen Printer (P) Ltd.
8		Sun Pharma Sikkim
9		M/S Torent Pharma-Sikkim
10		Zydus HealthCare
11		Sikkim Breweries Ltd.
12		Sikkim Distilleries Ltd. (Private and State govt. joint venture)
13		Government Fruit preservation factory.
14	Major Exportable item	Pharmaceutical products
15		Distillery products

Source: Ministry of MSME, Government of Sikkim, 2018

Among the large-scale industries of the district, the major exportable industrial goods of the district are 1. Pharmaceutical products and 2. Distillery products.

Micro and small-scale enterprises of the district are the bases of the economy of the state (Table 2.26).

Table 2.26 Details of existing micro & small enterprises units in the East district

Sl. No.	Type of Industry	Number of units	Investment (in Lakh rupees)
1	Agro based	13	212.23
2	Woollen, silk & artificial Thread based clothes.	1	1.00
3	Ready-made garments & embroidery	1	2.55
4	Wood/wooden based furniture	4	234.37
5	Paper & paper products	3	175.42
6	Leather based	1	1.95
7	Chemical based	12	598.46
8	Rubber, plastic & petro based	1	16.50
9	Metal based (Steel Fab.)	3	10.20
10	Electrical machinery and transport equipment	1	3.00
11	Repairing & servicing	8	33.28
12	Others	128	5991.88

Source: Ministry of MSME, Government of Sikkim, 2018

Potential industrial sector of the district is eco-tourism and service sector activities. The district has many beautiful places for tourists' destinations. So, the potential service sector industries are - 1. Tours and Travels, 2. Hotels and Restaurants 3. Transport (DCMSME, Govt. of Sikkim, 2018).

2.5.16.2 Industries of the South district

Industrial position of the South district of Sikkim has been growing rapidly during recent years. Many of the large-scale industries have been set up in the district with some private investment. The large-scale industries of the district along with Temi tea estate under state government tea board are main industrial bases of the district.

Table 2.27 List of large-scale industries of the South district

Sl. No.	Category	Name of the Industries
1	Large Scale Industries	1. Zydus Wellness (Pharmaceutical)
2		2. SICPA India Limited (Printing Ink)
3		3. Yoksum Breweries Ltd.
4		4. IPCA Laboratories Ltd. (Pharmaceutical)
5		5. Esvegee Breweries, Manpur (ENA & Cattle Feed)
6		6. Temi Tea Estate (State Govt. Tea Board)
7	Major Exportable item	Pharmaceutical products
8		Distillery products

Source: Ministry of MSME, Government of Sikkim, 2018

Among the large-scale industries of the district, the major exportable industrial goods of the district are the same as the East district, which are 1. Pharmaceutical products and 2. Distillery products (Table 2.27).

Micro and small-scale enterprises of the district are the bases of the economy of the state (Table 2.28).

Potential industrial sector of the district is eco-tourism and service sector activities. The district has many beautiful places for tourists' destinations. So, the potential service sector industries are - 1. Tours and Travels, 2. Hotels and Restaurants 3. Transport (DCMSME, Govt. of Sikkim, 2018).

Table 2.28 Details of existing micro & small enterprises units in the South district

Sl. No.	Type of Industry	Number of units	Investment (in Lakh rupees)
1	Agro based	9	43.05
2	Woolen, silk & artificial Thread based clothes.	1	0.50
3	Jute & jute based	1	1.00
4	Wood/wooden based furniture	3	0.80
5	Paper & paper products	2	17.56
6	Chemical based	1	97.39
7	Mineral based	1	415.00
8	Metal based (Steel Fab.)	5	3.36
9	Repairing & servicing	1	81.00
10	Others	25	700.36

Source: Ministry of MSME, Government of Sikkim, 2018

2.5.17 Power Infrastructure

The country of Sikkim is blessed with fantastic hydroelectric electricity capacity that has been laboured out at 8000 MW peak and a company base of 3000 MW (Debnath, 2009). About seventy miles North East stretch of Sikkimese territory possesses a land gradient that lies more or less among 500 feet to twenty-eight,000 feet above imply sea degree. Due to this amazing terrain Sikkim homes a number of the maximum turbulent

and swiftest rivulets within the international that is nice ideal for harnessing hydel strength ability (Dukpa et al., 2018).

Sources of power of the state, there are 18 power stations (all are hydel power stations) within the state. Out of 18 power stations of the state 8 power stations are located in the East district, namely Singtam, Ranipool, Sang khola, Nimitar (Two power stations), Gangtok and Rongli whereas in South district only one power station is located at *Manglay* (Sikkim ENVIS, 2018). These power stations are another destination of in-migrant workers.

Energy consumption of the state in 2014-15 is 119.88 MU in rural areas and 74.12 MU in urban areas. Per capita consumption of the state is 262.33 kwh in rural areas and 482.63 kwh in urban areas (Table 2.29).

Table 2.29 Rural-urban Energy consumption and Per capita energy consumption of Sikkim

Sl. No.	Year	Energy Consumption (MU)		Per capita consumption (Kwh)	
		Rural	Urban	Rural	Urban
1	2010-2011	130.54	69.17	271.41	1155.40
2	2011-2012	136.89	71.37	299.54	464.73
3	2012-2013	126.68	79.49	277.19	517.61
4	2013-2014	135.10	78.06	295.62	508.61
5	2014-2015	119.88	74.12	262.33	482.63

Source: Sikkim Energy and Power department, Government of Sikkim, 2018

Electricity consumption in different sectors in the state in 2014-15 (Table 2.30) shows that the out of total 248.75 Kwh consumption highest electricity consumed by HT industrial sector, which is 110.49 Kwh per annum followed by 78.93 Kwh consumed in domestic purpose per annum, while commercial sectors of the state consumed 35.43 Kwh electricity per annum. Other sectors consumed very little proportion of electricity per annum.

Table 2.30 Sector-wise Electricity consumption of Sikkim (in Kwh per annum)

Sl No.	Category of sector	2012-13	2013-14	2014-15
1	Agriculture	0.00	0.00	0.00
2	Domestic	78.98	83.98	78.93
3	Commercial	38.26	35.43	35.33
4	Public lighting	0.43	0.35	0.29
5	Temporary supply	0.09	1.61	1.36
6	HT industrial consumers	91.96	97.11	110.49
7	LT industrial consumers	1.15	1.15	1.37
8	Bulk supply	16.23	17.74	20.98
Total		226.90	237.37	248.75

Source: Sikkim Energy and Power department, Government of Sikkim, 2018

Total energy consumed by the state is much more than the energy produced within the state. State consumed 5920 MW of energy from other states and country neighbouring to state. 1650 MW from West Bengal, 3000 MW from Bihar, 1000 MW from Orissa and 270 MW from the neighbouring state of Bhutan (Sikkim ENVIS, 2018).

2.5.18 Transport and Communication

2.5.18.1 Road

Transport and communication are the most important factors for industrial development and economic progress of the State especially in a hilly region like Sikkim. The absence of a rail network or commercial air services means that motor transport is the only means of getting around (Choudhury, 2006).

Table 2.31 District-wise Road Classification of Sikkim, 2019

District	Road Classification				Total
	NH	SH	MDR	ODR	
North	0.00	0.00	67.77	34.64	102.41
West	14.78	261.86	424.42	78.29	779.35
East	38.00	203.73	244.96	101.76	588.45
South	124.00	197.50	348.11	168.70	838.31
Grand Total	176.78	663.09	1085.26	383.39	2308.52

Source: Road and Bridge Department, Govt. of Sikkim, 2019

*(Length of the Roads in km.)

The public facilities for the residents are also scattered in different villages in the hills. Many of the rural villages are not integrated in the national road network due to the absence of rural road networks or poor condition of the existing roads. It is therefore difficult to get to public services and participate in economic and social activities

resulting in low quality of life for the rural residents. The public facilities for the residents are also scattered in different villages in the hills. Many of the rural villages are not integrated in the national road network due to the absence of rural road networks or poor condition of the existing roads. It is therefore difficult to get to public services and participate in economic and social activities resulting in low quality of life for the rural residents.

The road facilities for the habitat in the hilly terrain are scattered in nature. Many of the remote areas in the region are not connected to the main township or main road of the region (Shrestha, 2018). The state of Sikkim also has faced some difficulties in connection with road networks in the region. The whole state has depending on a single National Highway (NH 31A) which passes through the East, South and West districts of the state. This road is the main transport link with other states of the country. Sikkim has four types of road connectivity in the state according to their importance of connectivity such as National Highway (NH), State Highway (SH), Major District Road (MDR) and Others District Road (ODR). Total length of the National Highway in the state is 176.78 km of which 124 km passing through the South district and 38 km passing through the East district of the state. The whole state has a total 663.09 km of State Highway, out of which 203.73 km passing through the East district and 197.50 km passing through the South district of the state.

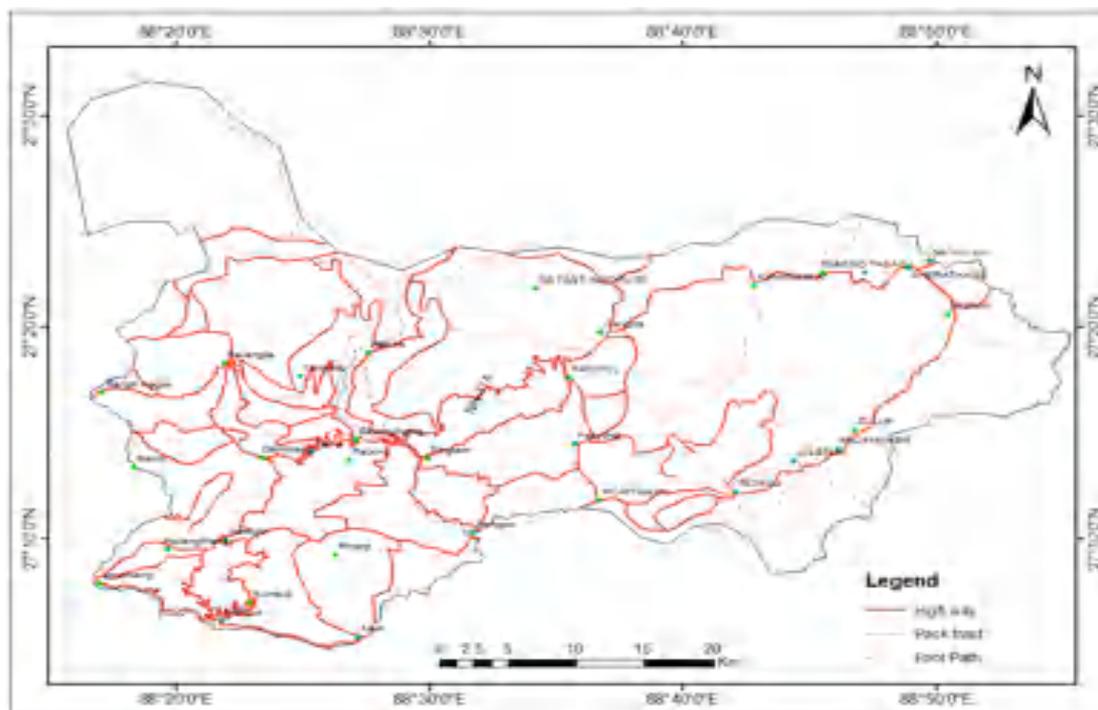


Figure 2.24 Transport network of the study area

East and South districts of Sikkim occupying 244.96 km and 348.11 km of MDR out of 1085.26 km of the state and 101.76 km and 168.70 km of ODR out of 383.39 km of the state respectively (Table 2.31). It reveals that the East and South districts of Sikkim are much more developed than the other districts of Sikkim in terms of road connectivity facilities. This is one of the main reasons for in-migration in the study area (East and South districts of Sikkim). Total 718 km of roads including 40 km of National Highway are maintained by BRO due to international border with Nepal, Bhutan and China. The rest of the NH maintained by the CPWD and the rest of the roads of SH, MDR and ODR of Sikkim of 1453.74 km maintained by the SPWD of Govt. of Sikkim (Road and Bridge Department, Govt. of Sikkim, 2019).

2.5.18.2 Railway

There is no railway facility in the study area till now. Siliguri and New Jalpaiguri of West Bengal are the nearest rail stations from the study area, which are 114 km and 125 km far from the study area. A railway booking facility is available at the SNT bus terminus in Gangtok for the residents of the state. A proposed railway tracks already been initiated by the Indian Railway which link Rongpo of East district of the state to Siliguri rail station of West Bengal. Besides this, another proposed linking of 75 km railway between New Jalpaiguri in West Bengal with Jorethang in the South district of Sikkim by broad-gauge Trans-Himalayan railway is under active consideration by the central and state governments. (NEDFi databank, 2019).

2.5.18.3 Air Services

There is a regular 5-seater helicopter service in the state from Gangtok to Bagdogra airport of West Bengal, which covers 124 km. of air distance and is approximately 4 hours' drive from Gangtok. The State Govt. of Sikkim signed a memorandum with the Airport Authority of India (AAI) for construction of an Airport at Pakyong of East district, which has been sanctioned by the Govt. of India (NEDFi databank, 2019).



Plate 2.3 Road network in the study area a. Singtham b. Jorethang c. Paykong d. Namchi e. Sambuk and f. Ravangla

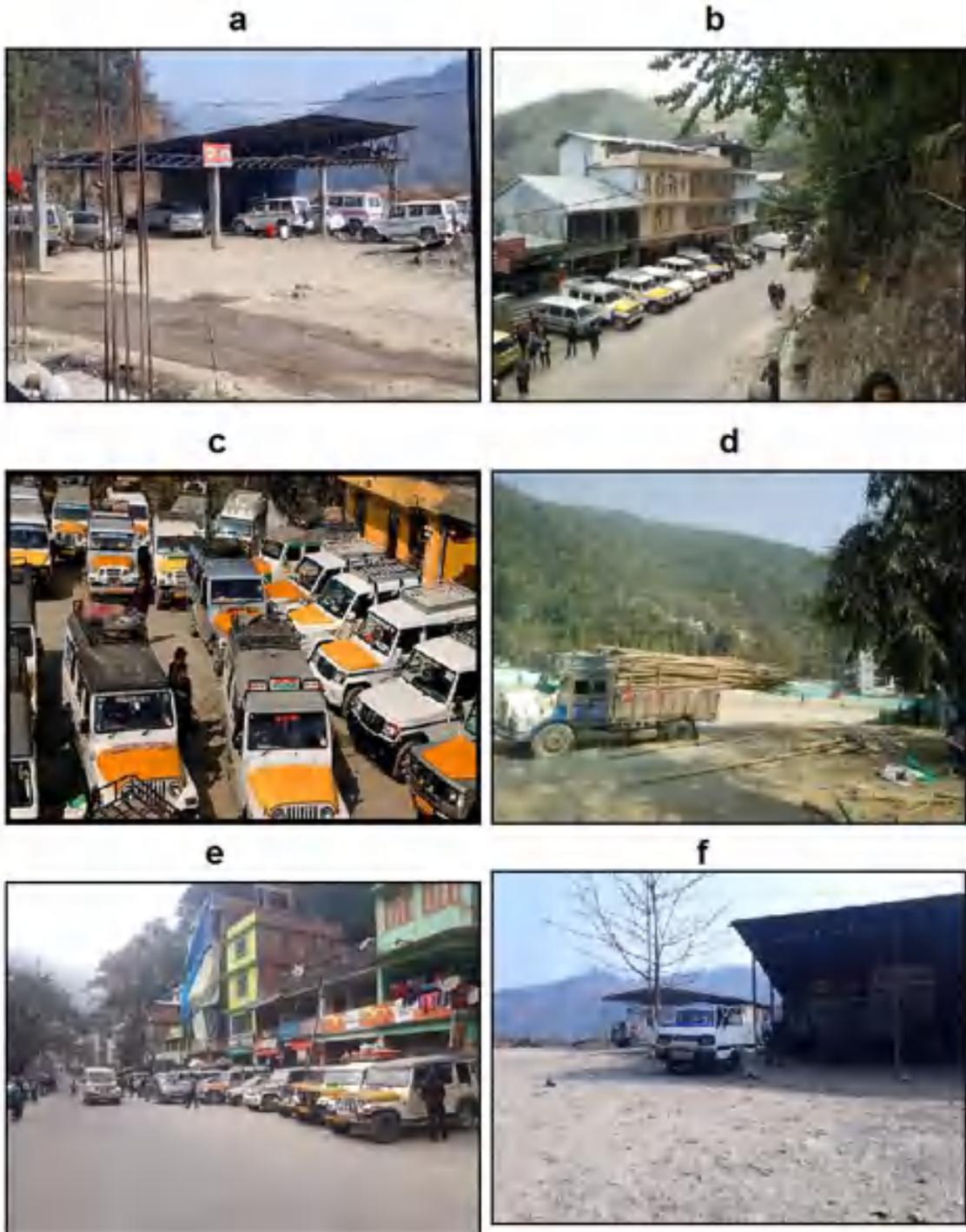


Plate 2.4 Transportation facilities in the study area at a. Jorethang b. Rongpo c. Gangtok, d. Singtham e. Namchi and f. Sambuk

2.5.18.4 Communication

Sikkim has the highest density of telephone networks among the other states of the country. The state has very poor telecom facilities up to the decade of 1990s. But, when the state had setting up the Sikkim Telecom Department under the West Bengal Circle of Bharat Sanchar Nigam Limited (BSNL) in 2000, telecommunication facilities of the state have expanded rapidly. Numbers of landlines increased from 3000 in 1999 to 49350 in 2004. The Telecom Department of Sikkim has set up Village Public Telephones (VPTs) in 374 of the 427 revenue villages. The remaining villages are too remote for cable or wireless in local loop (WLL) systems. However, the Telecom Department tries to link them through satellite. Mobile telephone services of the state have grown rapidly from its beginning in 2004. Almost all the areas of East, South and West districts of the state cover the mobile network connectivity. But, in the North district of the state mobile services are only available as far as Mangan. Good telecommunications services in the study area can help to overcome some of the barriers imposed by the hilly terrain by increasing access to information, goods, and social and economic services especially for those living in remote areas (NEDFi databank, 2019).

2.5.19 Tourism

Sikkim is a hilly country nestled in the lap of Eastern Himalaya. The kingdom takes delight in its natural beauty manifested via the snow-clad mountains, landscape dotted with perennial streams & waterfalls, lush inexperienced forests, picturesque villages, natives in traditional dresses and indigenous structure (Rizal and Ashokan, 2013). The crime unfastened society provides to the natural sights of the kingdom, making it one of the most sought-after vacationer destinations within the kingdom.

Tourism is one of the priorities and important sectors of the nation and its miles to turn out to be the principal economy of the country development. it's far a non- polluting, low fee and excessive return-oriented industry for the kingdom subjective to positive precautions (Chakraborty, 2010). For this, the nation has adopted integrated development for making the Tourism most possible region.

Sikkim is a visitor friendly country in the genuine feel of the phrase. for the duration of crises along with natural calamities, mishaps and even during road blocks due to moves, the Tourism department, people and groups have played a chief role in

assisting the tourists to conquer those troubles by co- coordinating with diverse other corporations for the safety of the travellers (Anjan, 2014).

Sikkim is a land of festivals and fairs. All of the ethnic groups have exceptional and wonderful a laugh- stuffed fairs, that are celebrated all over the state (Chaudhuri, 2012). The Tourism branch is gambling a first-rate role in selling those festivals so one can show off our subculture and heritage to the world.

Table 2.32 Domestic & Foreign tourists of Sikkim during 2011-2017

Year	Number of Domestic tourists	Annual growth rate (%)	Number of foreign tourists	Annual growth rate (%)
2011	552453	NA	23945	NA
2012	558538	1.10	26489	10.62
2013	576749	3.26	31698	19.66
2014	562418	-2.48	49175	55.14
2015	705023	25.36	38479	-21.75
2016	740763	5.07	66012	71.55
2017	1375854	85.73	49111	-25.60

Source: Tourism and civil aviation department, Govt. of Sikkim, 2018

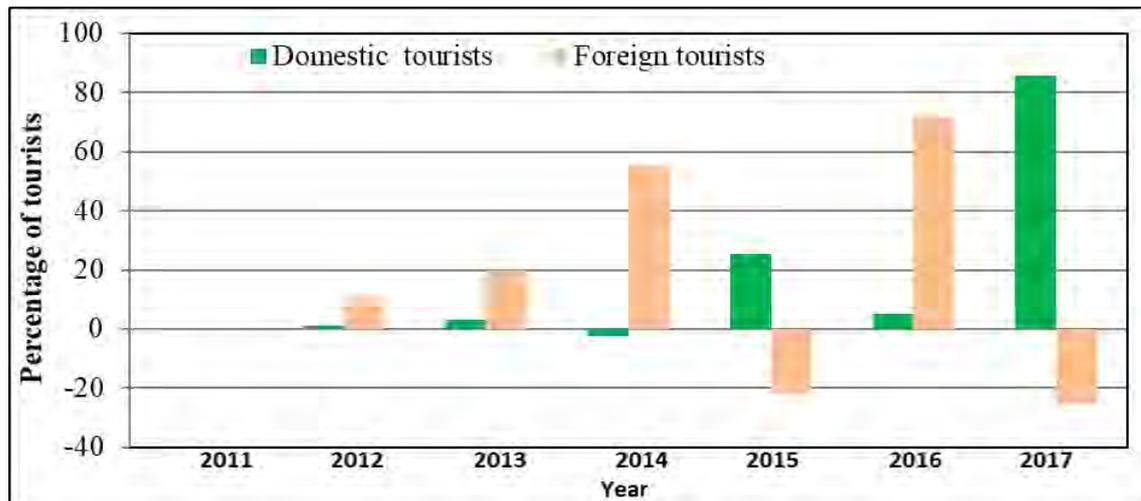


Figure 2.25 Annual growth rate of tourists

Numbers of domestic tourists of the state gradually increase year by year from 2011 – 2017 except 2014, whereas numbers of foreign tourists of the state gradually increase in every year from 2011 – 2017 except 2015 and 2017. The numbers of domestic tourists drastically jumped in 2017 from 2016, which increased by 85.73%, whereas numbers of foreign tourists decrease by 21.75% in the year 2015 from 2014 and 25.60% in the year 2017 from 2016 (Table 2.32 & Figure 2.25).

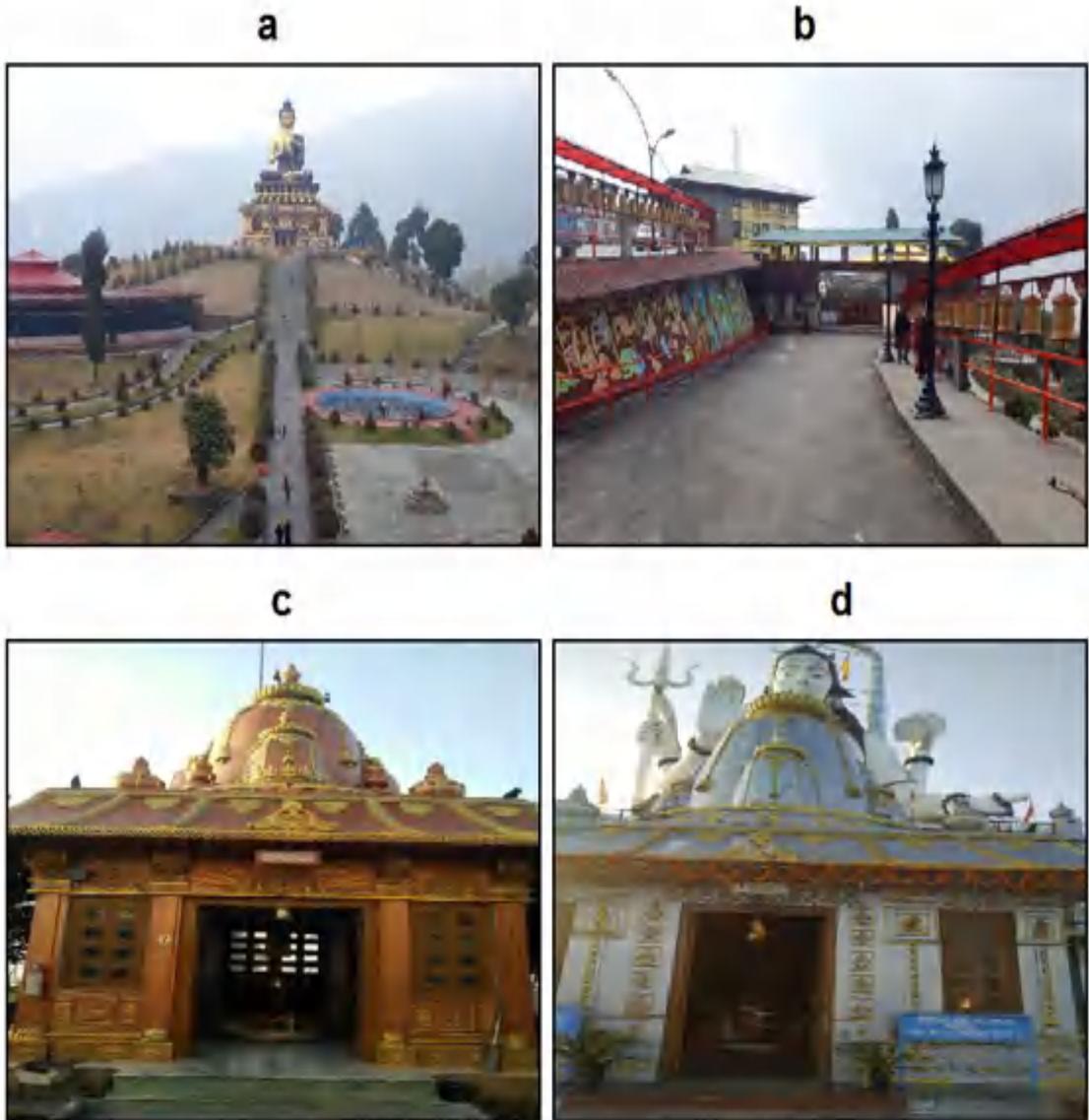


Plate 2.5 Holy place in the study area at a. and b. Ravangla c. Singtham and d. Namchi

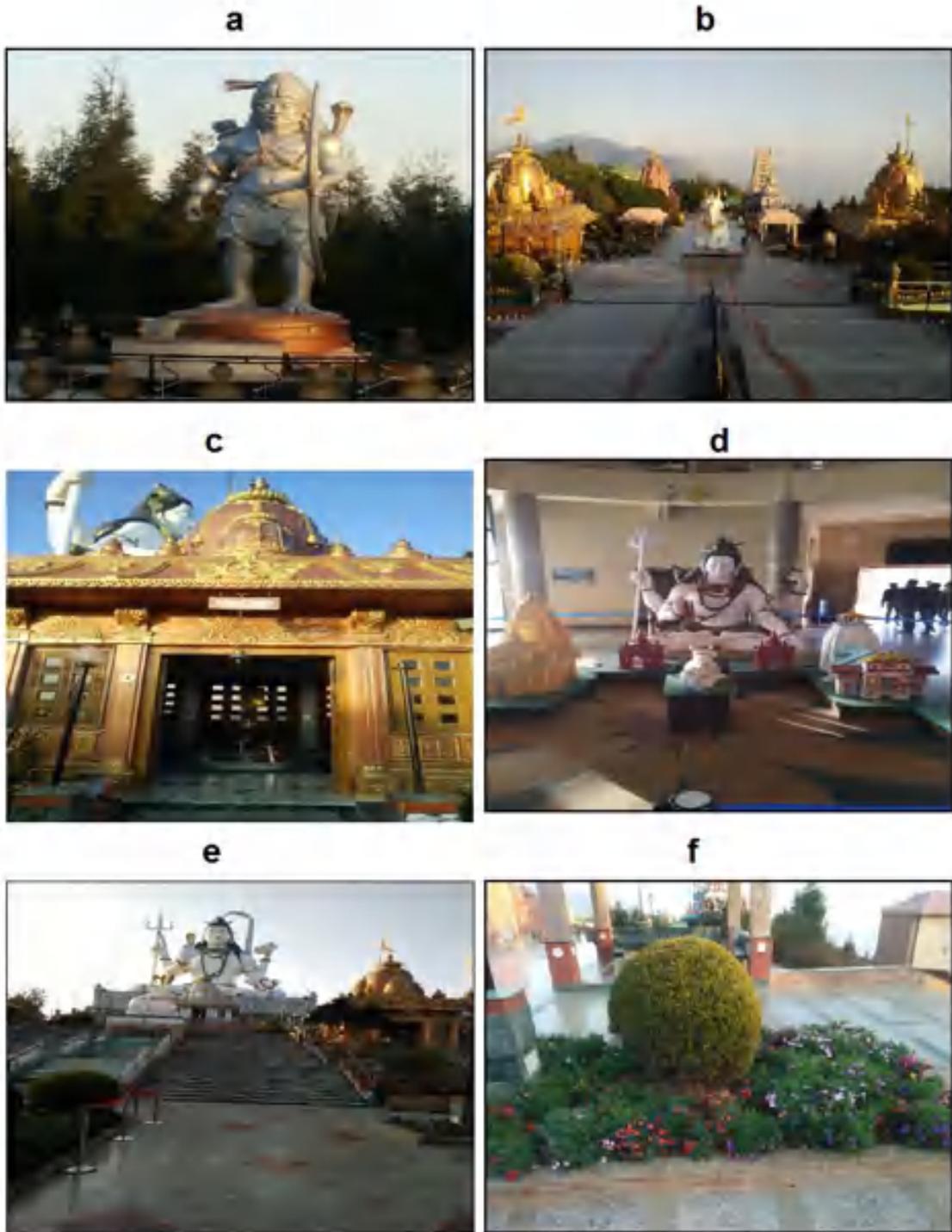


Plate 2.6 Tourist place in the study area at a. b. c. and e. in South district and d and f. in East district

Numerous tourist places of attraction are located in the study area both in East and South districts of Sikkim. The East district of the state has various tourist places like *Tsongo lake* (famously known as '*Changu lake*'), *Baba Mandir*, *Nathula pass* with the border with China, and *Rumtek monastery*. *Gangtok town*, which is the capital of Sikkim, also provides an enormous tourist attraction for domestic as well as foreign tourists. Different florae are the main attraction for the tourists in *Gangtok town* (Tourism and Civil Aviation Department, Govt. of Sikkim, 2018).

South district of Sikkim is the ideal conditions for both the domestic and foreign tourists. *Tarey Bhir*, *Temi tea garden*, *Samdruptse* (The tallest statue of *Guru PadmaSambhava* in the world with a height of 135 ft built above *Namchi town*), *Siddheswar Dham* (famously known as '*Char Dham*'), *Buddha Park* (*Tathagata Tsal*) at *Ravangla sub-division* of South district of Sikkim are the main tourist places of attraction. Rather than a physical scenario, the district also provides the best of tourism (Tourism and Civil Aviation Department, Govt. of Sikkim, 2018).

2.6 Summary

The study area East and South districts of Sikkim are located in the lap of eastern Himalayan region of India. The study area essentially has hilly topography with no flat or plain surface. The geological structure of the area is the composition of massive gneisses rocks and soft, thin and schistose rocks. The rivers of the study area are formed from the different glaciers of the Himalayan Mountain. There is enormous vegetal cover throughout the area with the maximum of coniferous forest. The climatic conditions of the study area are a humid mountainous type of climate with the huge rainfall in the rainy season and occurrences of snowfall in the winter season along with mild summer season. The soil of the area is composed of (a) clayey loam and sandy loam soils and (b) hill soils or residual soils. The growth of the population of the area has drastically increased in the last three decades along with increase in urbanisation. Educational status of the area is better than the national average. Agriculture is the main occupation of the inhabitants of the area. Irrigation system is not so good due to scarcity of water in mountainous topography. The area is enriched with some minerals in negligible amounts. Industrial sectors are developing with some Government and private investments. Economy of the area has been growing day by day in the last two decades. Maximum proportion of the population of the area is economically independent. Health facilities of the area are not so appreciable, but it is also in a better

position than the time of merger with Indian Union. Tourism is the main source of the economy of the area. The area has a diverse ethnicity and cultural assimilation. Different fairs and festivals of different ethnic groups have taken place in the different parts of the area throughout the year. The transport network of the area is not so good due to the hilly tract of the area. The migrants of the study area are attracted with its growing development in agriculture, industrial as well as economic prosperity. The study area is of massive significance to the policy makers, Planners, academicians and above all the administrations for the future planning of the area. The findings of this chapter will go a long way in formulating plans and policies for the overall development of the region.

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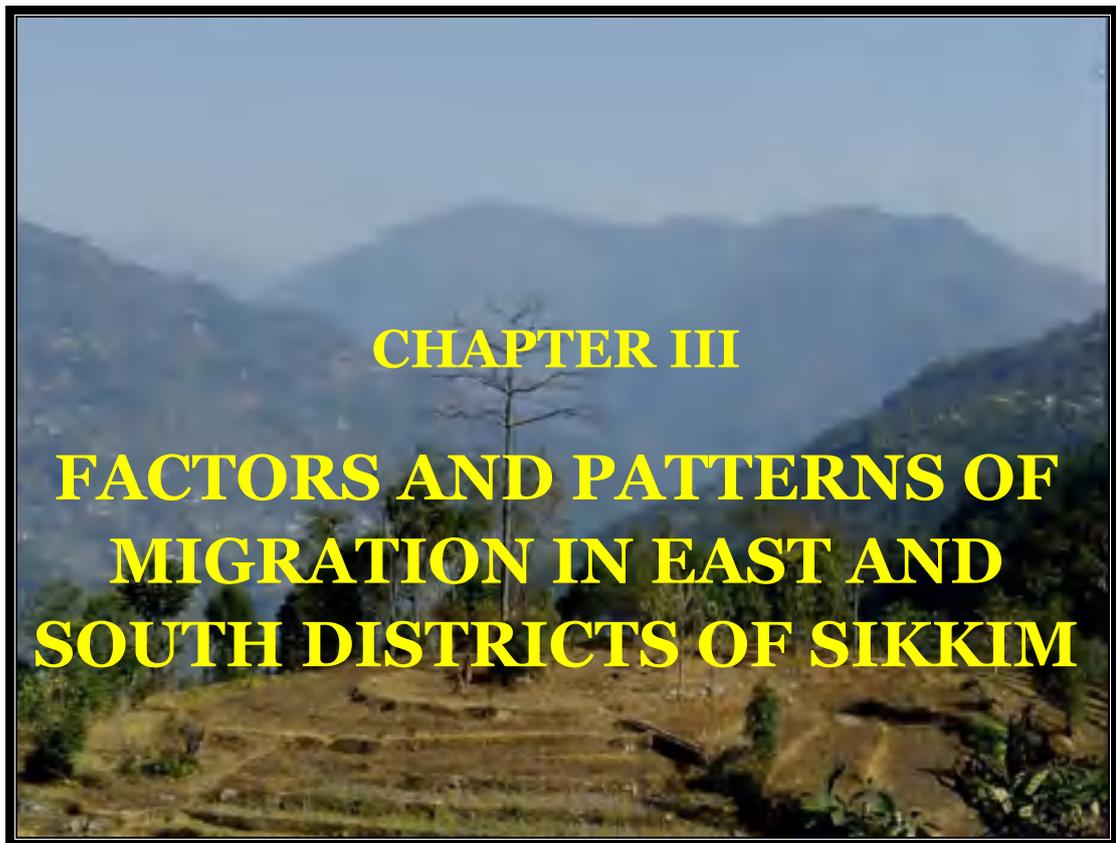
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CHAPTER III

**FACTORS AND PATTERNS OF
MIGRATION IN EAST AND
SOUTH DISTRICTS OF SIKKIM**

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FACTORS AND PATTERNS OF MIGRATION IN EAST AND SOUTH DISTRICTS OF SIKKIM

3.1 Introduction

The main purpose of the foregoing chapter is to describe the factors and pattern of in-migration in the East and south districts of Sikkim. The detailed study on both temporal and spatial variation in the trends of migration to East and South districts of Sikkim has brought us the difference between pull and push factors which have played their role for such a situation to exist. So, the push and pull factors which are responsible for temporal and spatial differences in migration patterns of the study area are being accounted for and analysed in this chapter. The prime objective of this chapter is to analyse the factors and patterns of the migrant population after 1975 in East and South districts of the state.

3.2 Database and Methodology

Primary and secondary data have been used to conduct this study. D-series migration tables of East and South districts of Sikkim have been used and collected from the website of Census of India, 1991 to 2011. On the other hand, primary data were collected from 340 migrants' respondents of East and South districts of Sikkim. About 190 samples were collected from the East district and 150 samples were collected from the South district. From the East district, there are 3 urban areas namely; Gangtok, Singtham and Rongpo have been chosen, whereas, from the South district, there are 2 urban areas namely, Namchi and Jorethang have been chosen for the collection sample data of migrants. Rather than these urban areas, 2 rural areas from each district have been chosen, which are Pakyong and Rongli from East district and Ravangla and Sumbuk from South district. The sample respondents among the migrants of the study area have been marked out with Stratified random without replacement along with Non-proportional in numbers, which is based on migrants' workplace i.e., urban and Rural. The last unit of the sample design has been considered a computer-based random table.

There are some methodologies that have been used to find out the factors and patterns of in-migration in the East and South districts of Sikkim. The factors and patterns of the in-migrants in the study area has been analysed by the East and South

districts separately. Main factors of in-migration in the districts have been found out with the index of factors of migration (both push and pull factors) in the districts (Sridhar et al., 2013). The patterns of in-migration in the East and South districts of Sikkim have been found out by the district-wise in-migration data adopted from the census reports of India and represents in census-wise percentage. The percentage of in-migrants in the study area has been calculated with the following equation (3.1) (Srivastava and Srivastava, 2004):

$$P_i = \frac{\text{Number of in-migrants according to their source of origin in particular census}}{\text{Total number of in-migrants in the district in a particular census}} \times 100 \dots 3.1$$

Where, P_i = *Percentage of in – migrants according to their source of origin in a district in a particular census*

The data have been analysed statistically with the help of SPSS software version 26.0. Maps in this chapter have been prepared using ArcGIS software version 10.3. Some cartographic techniques have been used to represent the analysed data such as pie diagram, bar diagram by MS excel 2019.

3.3 Concept and nature of Migration

From the ancient time of human civilization human beings moved from one place to another for the searching for food and shelter. This process of human society is well known as the process of migration (Fisher, 2014). In the present-day civilization human migration is the global phenomenon under globalization (Atak, 2018). The process of industrialization leads to the process of migration of workforce from rural to urban areas to seeking job opportunities and speed up the process of urbanization (Young, 1987). It is believed that migration may be age and sex-selective, migrants belonging to working-age group largely moved out due to economic activities (Chandna, 2006) and male migrants are more migrated than the numbers of female migrants (Raj, 2003). Migration is one of the main elements of population growth of an area along with fertility and mortality. The process of migration affects the structure and composition of population and also affects the socio-economic characteristics of the people at the origin and destination areas (Singh, 1998).

Analysis of migration plays a significant role to understand the economic development and process of industrialization (Koser, 2016). Wars also affect the process of migration locally and globally. There are several factors that are responsible for the migration of human beings, but migrants have not registered both the places of origin and destination in case of internal migration (Datta, 2003). Only international

migrants are registered in both the countries of origin and destination. The process of migration denotes the change of residence of people that has taken place on either permanent or temporary basis (Premi, 1990).

The factors of migration are mainly categorized into two categories, which are pull factors and push factors. Pull factors are those, which are responsible for the in-migration to the area of destination and push factors are those, which forced to people for out-migration from the area of origin (Schoorl, 2000). It is not common that either pull or push factors are responsible for the migration population of a region, both push and pull factors are operating concurrently in the same region (Maurya, 2014).

3.4 Migration history of Sikkim

The Lepchas are of Mongoloid origin living in the Himalayas on the southern and eastern slopes of Mt. Kanchenjunga (Subba, 2010). Lepchas, who call themselves “Rong” are known as aboriginals of Sikkim. The Lepchas communicate Tibeto-Burman language, based totally on which some anthropologists suggest they emigrated at once from Tibet to the north or eastern Mongolia (Gurung, 2011). However, Lepchas firmly believed that they did not migrate to the contemporary area from anywhere and are indigenous to the vicinity. They do not have any way of life of migration, and subsequently they conclude that they may be aboriginal to the place (Chakraborty, 2012).

The Bhutias are a community of people of Tibetan ancestry (Bhattacharyya, 1984). The Bhutias were starting their migration to Sikkim from Tibet around the 15th and 16th centuries as ‘_Lhopo’ or ‘_Lhopas’ which means ‘_The Greater Sikkim’ (Gurung, 2011). The Bhutia inhabitants, who migrated to Sikkim, have played an important role in establishing the kingdom of Sikkim. The majority of Bhutias include traders, peasant and Buddhist monks and upper class of society who helped in the formation of Sikkimese Kingdom (Joshi, 2004). The Lepchas people have the behaviour of inhibited and calm who avoid violence in any form (Bhattacharyya, 1984). Tibetan Bhutias were fascinated to Sikkim by the huge vacant land, green valleys, rich vegetal cover; plenty of water supplies and pleasant climatic conditions in comparison to cold climate, their stripped and uninviting mountain plateau. South district of Sikkim has an opportunity to cultivate rice in its favourable valley (Joshi, 2004). Tibetan who migrated into Sikkim has assimilated with the indigenous population of Lepchas in the later period of time (Plaisier, 2007).

As a result of Tibetan in-migration in the early 17th century to avoid conflict, the Rongs were relocated. Meanwhile, fights and quarrels between the followers of the "yellow hat" and "red hat" in Tibet were forced to take shelter in Sikkim, where they gained the status of nobility (Gurung, 2011). These Tibetan immigrants who were followers of the 'red hat' community in Tibet are now trying to convert this —worshippers of nature" in Sikkim to Buddhism. They were somewhat successful, although the Lepcha tried to isolate them as much as possible (Basnet, 1974). A bureaucratic empire was commenced by the refugee Bhutias with the help of local chiefs, and in 1642 Phuntsok Namgyal was established as the permanent king of the Namgyal dynasty (Kazi, 2020).

Nepalis make up over 70% of the total population of Sikkim. They started settling in Sikkim from the last two decades of the 19th century (Sidhu, 2018). Nepalese migrated from Nepal in large numbers to the country in the mid-19th century and soon the majority of the Lepcha and Bhutia became influential communities (Bhanja, 1993). Nepalese populations were encouraged by the British to settle down their shelter in Sikkim (Subba, 2008).

As Darjeeling was secured by the British in 1935, hardy Nepalis labourers were encouraged to settle to clear forests and develop it into an urban centre for the European (Bhanja, 1993). The necessity of labours for the construction of roads and cultivating the agricultural land had led the Nepalese for in-migration to Sikkim by the favour of British Empire (Bhanja, 1993). Nepalis also entered Sikkim as monopolists of the copper mines and mining industry. The more enterprising among them obtained land lease the Sikkimese Kazis. By the close of the 19th century, a section of the Newer emerged as the Nepali counterpart of the Kazis in Sikkim (Gurung, 2011).

The ethnic composition of Sikkim tainted hurriedly as the number of Nepalis increased (Chhetri, 2017). By 1971, Nepalese immigrants had grown upto 51% of the total population of Sikkim, Whereas, Lepcha and Bhutia occupied only 19% and 16% of the total populations of Sikkim respectively (Basnet, 1974). Nepali immigrants settled west and south of Sikkim and occupied the land of Bhutia and Lepcha. In the second half of the 19th century, Sikkim courts began to lose their authority and Nepali in-migration was permitted in most cases (Bhasin, 2002).

Later on, new Nepali immigrants were invited and brought in as an agricultural labour force and sharecropper (Pradhan, 2015). They gave the landscape an

indomitable beauty and an intelligent agricultural system which they started terrace cultivation to make the land of Sikkim very suitable (Subba, 2008). More than three-quarters of Sikkim's population is now of Nepali descent, who were entirely in-migrants.

3.4.1 Internal, National and International Migration of Sikkim:

The percentage distributions of streams of inter censal migration in the Himalayan state. Intra-district migration contributes the largest proportion of total migrants in 42% in the state of Sikkim (Census of India, 2011). Regarding international migration, it is noted that the proportion of international migrants in Sikkim is quite high. There is a huge gap between the percentages of international migrants amongst the states, with the percentage ranging from 0.6% in Jammu and Kashmir to about 10% in Sikkim (Census of India, 2011).

The sex ratio has been measured by the number of female migrants per 1000 male migrants (Chandna, 2006). As in other studies of migration in India female migrants dominate over male migrants in the short distance migration (Zachariah, 1964). But sex ratio of migrants in the state of Sikkim depicts a different picture. It is observed that the sex differential by streams of migration is quite low in Sikkim as compared to the other states (Census of India, 2011). Among the inter-district migrants, sex ratio is favourable to female migrants only in Sikkim (105 female per 1000 male migrants). It is amusing to observe that the sex ratio among the international migrants in the inter-censal period for the state of Sikkim (80 female per 1000 male migrants) is very high as compared to other states (Census of India, 2011). This suggests that the state of Sikkim offers better opportunities for female migrants than the other states.

The percentage distributions of reasons for inter censal migration in the Sikkim by sex experienced that the male migrants are migrated mainly for the employment, whereas females are migrated mainly due to marriage. Around 33% in Sikkim have migrated for work (<http://hdr.undp.org/en/>). It is interesting to note here that the Sikkim is in-migrating states. States having a higher percentage of work-related migrants have a correspondingly higher percentage of male and female migrating for work or business.

About 60% of the population is recorded as main workers in Sikkim (Census of India, 2011). It is observed that a significantly higher percentage of non-migrants are recorded as main workers as compared to migrants in all the states except the state of

Sikkim. The percentage of seeking work shows that a higher percentage of the non-migrant population sought work as compared to the migrant population in all these states. Among the migrants, a higher percentage of recent migrants sought work in comparison to the total migrants.

A quick glance indicates that sex differential is quite large in workforce participation at the national level as well as in the Himalayan state. There is a clear dominance of males in the main workers' category. It is observed that the sex ratio is 54 females per 1000 males in Sikkim (Census of India, 2011). But it is quite the opposite when marginal workers and non-workers categories are taken into consideration. In these categories, female outnumbers the male to a very large extent. This indicates that males are more likely to be employed in better and more productive jobs than females. However, among recent migrants, females seeking work outnumber male migrants in the states. This seems to suggest that recent female migrants seek work more as compared to females belonging to other categories (Lusome and Bhagat, 2013). There is large difference between the sex ratio of non-working or marginal-workers and female seeking work suggesting that a large proportion of non-working females are still not seeking work. The state of Sikkim with higher workforce participation has larger representation of female main workers as compared to the other states. The percentage of main workers increases along with the increases in the sex ratio suggesting that the inclusion of female population in workforce increased the share of the total percentage of main workers (Chakraborty and Chakma, 2016).

3.5 Factors of in-migrants in the study area

The primary push factors that have been considered are low wages in the place of origin, loan burden in the family, large household size, small size agricultural land holding, inadequate job in the place of origin, poor public service in source region, inspired or pushed by the family, occurrences of natural disaster, active religious persecution and political intolerance in the place of origin of migrants. The selected pull factors are main attractions of destination region such as income opportunity including better job, business and higher income, standard of living in the destination region of East and South district of Sikkim, marriage and education opportunity in South or East district, chain migration network to help find a job in the destination region, move with household, attractive environment of Sikkim, and principle of cultural tolerance. Some of the reasons selected as —Pushfactor” and few of the reasons

selected as —Pullfactor” are inter-related and very difficult to separate from one another.

Hence, those who selected each a —push” and a corresponding —pull” factor are often classified as a group of migrants for whom each the push and pull factors were vital for migration. Therefore, to distinguish the strictly push from the strictly pull factors, researcher tend to outline a variable Y_i , for every individual migrant followed by the formula (Sridhar et al., 2013)

$$Y_i = \frac{\text{Number of Pull reasons for migration chosen}}{\text{Total number of reasons for migration chosen}} \dots\dots\dots 3.2$$

Where the variable Y_i varies from zero to one, with the worth zero indicating that the individual’s reasons for migration are —only push” in nature, and with the worth one relating —only pull” factors (Sridhar et al., 2013). Following this formula, the present researcher tends to classify the factor of migration into 5 groups (Table 3.1).

Table 3.1 Index of factors of migration after Sridhar et al, 2012

SI No.	Y_i	Factors
1	0	Only push
2	0 to < 0.5	Mainly push
3	0.5	Both push and pull
4	0.5 to 1	Mainly pull
5	1	Only pull

3.5.1 Factors of in-migration in the East district of Sikkim

After analysing the index of factors of Table 3.2, it is revealed that the in-migrants in the East district of Sikkim have different factors for migration. According to the index of factors a large number of migrants are pushed out from their last residence from the different parts of the country. Among the migrants’ 52.63% are migrated to the district by the force of push factors, which includes low wages, loan, large size of household, small holding of land, inadequate job, poor public service, family sentiments or necessity, natural disasters, active religious persecution and political intolerance in their last place of residence. According to the index of factors there are two categories for the push factors which are only push factors are responsible for the migration and mainly push factors are responsible for the migration. In the East district of Sikkim only 2.63% in-migration pushed out by the only push factors, whereas, 50.00% of the in-migration pushed out by the mainly push factors. On the other hand, a part of the

migrants gets pulled which is 35.06% of the total in-migrants. Pull factors include better job, Business opportunity, higher income advantages, betterment of standard of living, marriage, education facilities, impact of chain migration, forceful movement with the family, attractive environment in the migration field and principle of cultural tolerance. There are pull factors also categories into two categories, which are only pull factors and mainly pull factors. Mainly pull factors are responsible for 24.21% of in-migration to the district, whereas, only 11.05% in-migrants get pulled by only pull factors to the district. Among the total in-migrants 12.11% are influenced equally by the different reasons for both push and pull factors (Figure 3.1 and 3.4). Upper bound on frequencies range between 57.11 for mainly push factors to 4.91 for only push factors at 95% confidence interval. Whereas, lower bound on frequencies ranges between 42.89 for mainly push factors to 0.36 for only push factors at 95% confidence interval (Table 3.2).

Table 3.2 Proportions of factors of migration in the East district of Sikkim

Categories	No of respondents	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Only Push	5	2.63	0.36	4.91
Mainly Push	95	50.00	42.89	57.11
Both Pull & Push	23	12.11	7.47	16.74
Mainly Pull	46	24.21	18.12	30.30
Only Pull	21	11.05	6.59	15.51

Source: Household survey, 2018

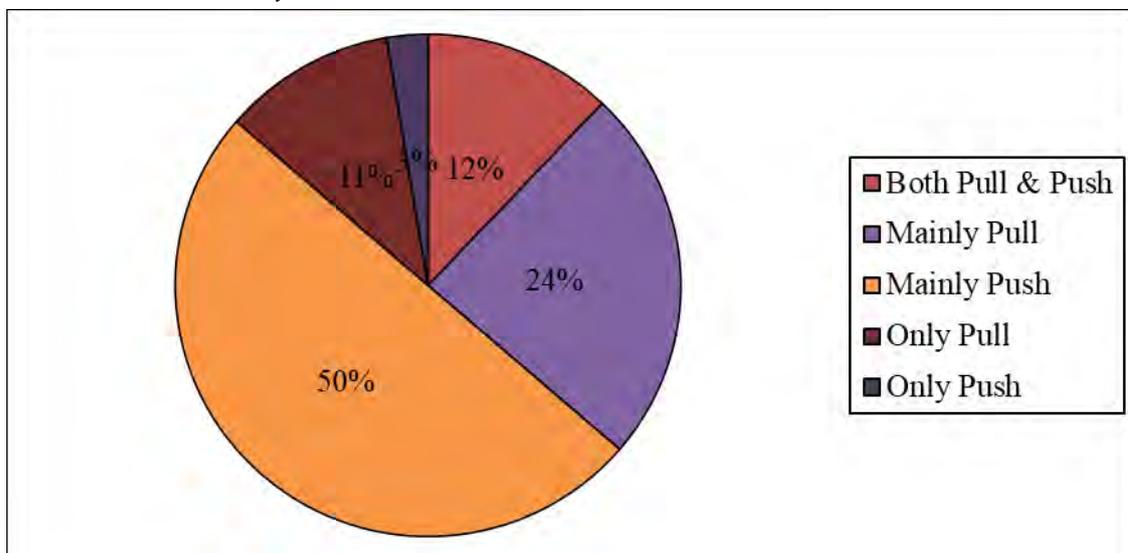


Figure 3.1 Factors responsible for migration in the East district of Sikkim

3.5.2 Specific reasons for in-migration in the East District of Sikkim

In the East district of Sikkim there are some specific reasons for in-migration. It is found from Table 3.3 that there are some specific individuals who are considered in-migrants due to push and pull factors of in-migration to the district among all the in-migrants. Specific reason among the pull factors is dominated by the higher income advantages in the district which is 13.48% followed by better job opportunities (7.57%), betterment of standard of living (5.63%), impact of chain migration (4.85%), business opportunities (3.98%), forcefully movement with the family (3.20%), attractive environment in the migration field (2.62%), principle of cultural tolerance (2.04%), marriage (0.48%) and lastly for the education facilities at 0.29% (Figure 3.2 & 3.3).

Table 3.3 Specific reasons of In-migration in the East District of Sikkim

Pull factors	% of Respondents	Push factor	% of Respondents
Better job	7.57	Low wages	6.69
Business	3.98	Loan	1.65
Higher Income	13.48	Large household	10.57
Standard of Living	5.63	Small holding	11.83
Marriage	0.48	Inadequate job	10.28
Education	0.29	Poor Public Service	1.75
Chain Migration	4.85	Family	9.99
Move with household	3.20	Natural Disaster	0.68
Attractive Environment	2.62	Active Religious persecution	0.39
Principle Cultural Tolerance	2.04	Political intolerance	2.04
Total Pull	44.13	Total Push	55.87

On the other hand, there are some specific reasons for push factors of in-migration in case individuals and these dominate push factors in the process of in-migration in the study area. Specific individual reasons among the push factors are dominated by the smallholding of land in the place of last residence, which is 11.83%. Second largest push factor for moving out is large size of household which pushed out the individuals from the last place of residence which is 10.57% followed by inadequate job opportunities in the place of last residence (10.28%), burdens of the family (9.99%), low wages in the place of last residence (6.69%), political intolerance in their last place of residence (2.03%), poor public service (1.75%), burdens of loan

(1.65%), natural disasters in the place of last residence (0.68%) and lastly the active religious persecution (0.39%).

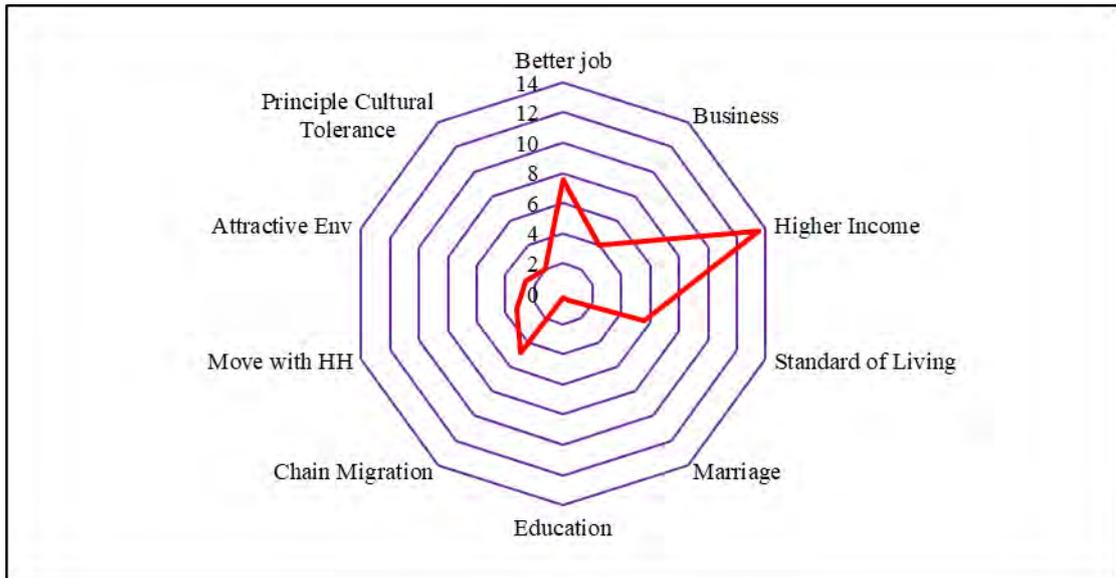


Figure 3.2 Specific reasons of pull factors of migration in the East district of Sikkim

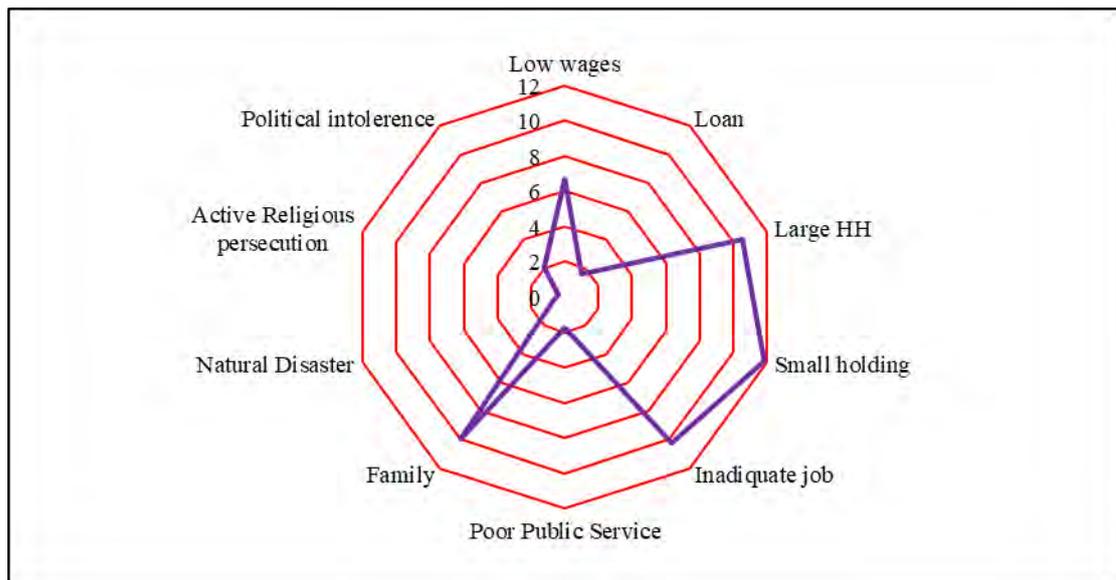


Figure 3.3 Specific reasons of push factors of migration in the East district of Sikkim

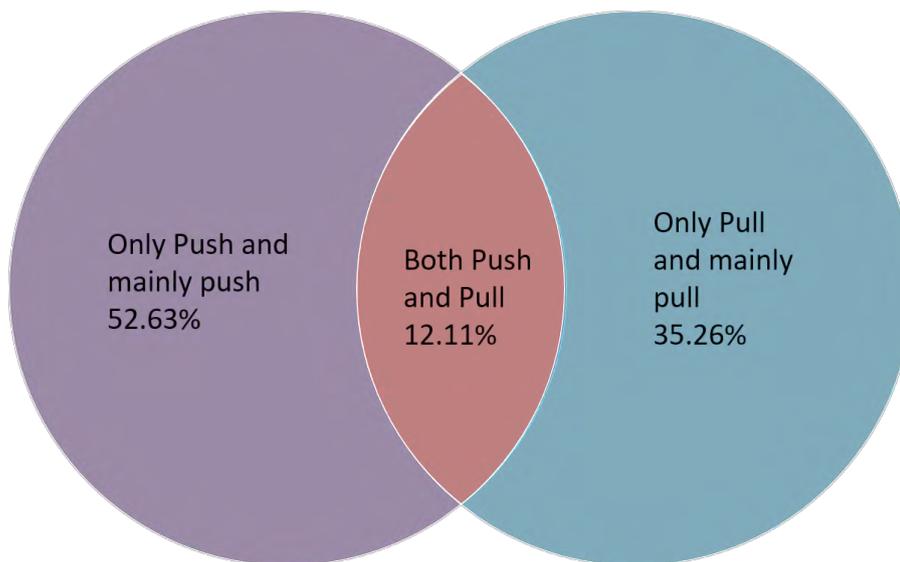


Figure 3.4 Overlap of push and pull factors in the East district of Sikkim

3.5.3 Factors of in-migration in the South district of Sikkim

In the South district of Sikkim, there are several factors, which determine the process of in-migration to the district from the different parts of the country. Index of factors of the in-migration of the district revealed that the maximum numbers of in-migrants in the district are pushed out from their source of origin or their last place of residence. According to the index of factors, there are two types of push factors, which are only push factors and mainly push factors. Whereas, there are also two types of pull factors, which are mainly pull factors and only pull factors. Push factors have been considered as the factors which compel the migrants to move out from their last place of residence. The push factors which are responsible for the in-migrants of the district includes low wages, loan, large size of household, small holding of land, inadequate job, poor public service, family sentiments or necessity, natural disasters, active religious persecution and political intolerance in their last place of residence. 51.33% of the in-migrants of the district are migrated to the district by the different reasons of push factors. Out of the total push factors, 2% in-migrants are migrated by the force of only push factors, whereas 49.33% of the in-migrants of the district are migrated by the force of mainly push factors. On the other hand, in-migrants of the district get pulled by the district with several reasons for the in-migration. 39.34% in-migrants of the district have the reasons for pull factors. Out of which, 30.67% in-migrants are migrated due to the mainly pull factors of the place of destination and only 8.67% in-migrants having the reasons for only pull factors. The reasons for the pull factors include better job,

Business opportunity, higher-income advantages, betterment of standard of living, marriage, education facilities, impact of chain migration, forceful movement with the family, attractive environment in the migration field and principle of cultural tolerance. Only 9.33% of in-migrants of the district are migrated by the influence of both push and pull factors equally (Figure 3.5 and 3.8). Upper bound on frequencies range between 57.33 for mainly push factors to 4.24 for only push factors at 95% confidence interval. Whereas, lower bound on frequencies ranges between 49.33 for mainly push factors to 2.00 for only push factors at 95% confidence interval (Table 3.4).

Table 3.4 Proportion of factors of migration in the South district in Sikkim

Categories	No of respondents	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Only Push	3	2.00	0.00	4.24
Mainly Push	74	49.33	41.33	57.33
Both Pull & Push	14	9.33	4.68	13.99
Mainly Pull	46	30.67	23.29	38.05
Only Pull	13	8.67	4.16	13.17

Source: Household survey, 2018

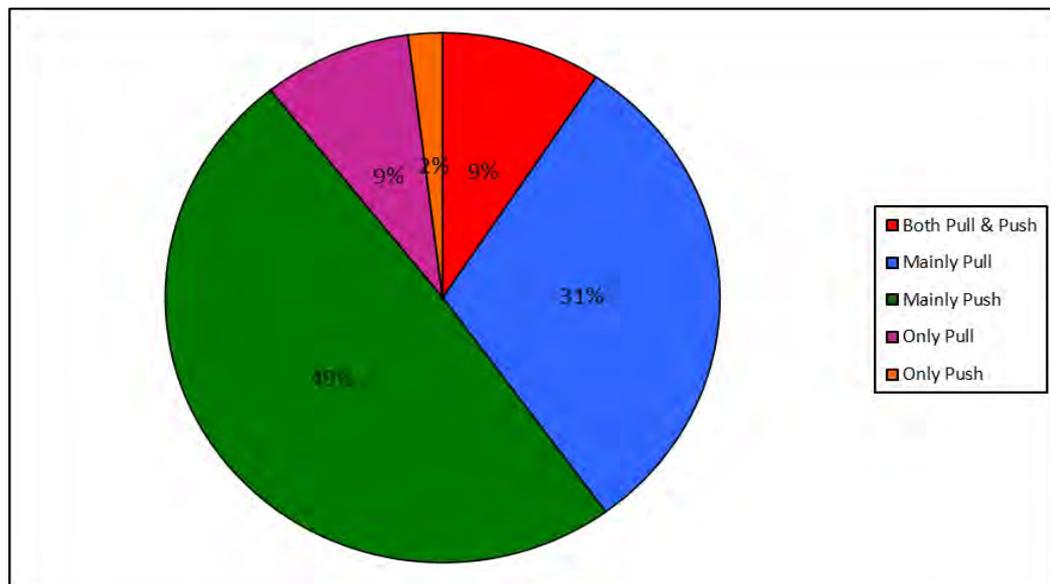


Figure 3.5 Factors responsible for migration in the South district of Sikkim

3.5.4 Specific reasons for in-migration in the South District of Sikkim

There are several specific reasons that are responsible for in-migration of the South district of Sikkim. Specific reasons for in-migration to the district have been taken into consideration from both the push and pull factors. Table 3.5 indicates that there are some individual specific reasons among the push factors that dominate the in-migration

process to the district. Main individual-specific reasons for the push factors are small size of landholding in the place of last residence, which is 12.12% among the total reasons for migration of the immigrants to the district. Secondly, large size of household is compelled to move out from the place of last residence, which is occupying 11.09% among the total specific reasons of the immigrants followed by inadequate job opportunities in the place of last residence (10.74%), burdens of the family (9.82%), low wages in the place of last residence (6.47%), political intolerance in their last place of residence (1.73%), poor public service in the place of last residence (1.50%), burdens of loan (1.39%), natural disasters in the place of last residence (0.23%) and there are active religious persecution have not any influence to the in-migrants in the district.

Table 3.5 Specific reasons of In-migration in the South District of Sikkim

Pull factors	% of Respondents	Push factor	% of Respondents
Better job	7.51	Low wages	6.47
Business	3.70	Loan	1.39
Higher Income	14.43	Large household	11.09
Standard of Living	5.77	Small holding	12.12
Marriage	0.12	Inadequate job	10.74
Education	0.35	Poor Public Service	1.50
Chain Migration	4.73	Family	9.82
Move with household	2.42	Natural Disaster	0.23
Attractive Environment	3.46	Active Religious persecution	0.00
Principle Cultural Tolerance	2.42	Political intolerance	1.73
Total Pull	44.92	Total Push	55.08

Source: Household Survey, 2018

On the other hand, there are some individual specific reasons for pull factors that are responsible for in-migration to the district. An individual specific reason for higher income opportunity is the main reason of in-migration to the district. Higher income opportunity occupying 14.43% among the total reasons for in-migration followed by better job opportunities (7.51%), betterment of standard of living (5.77%), impact of chain migration (4.73%), business opportunities (3.70%), attractive environment in the migration field (3.46%), forcefully movement with the family (2.42%), principle of cultural tolerance (2.42%), education facilities (0.35%) and lastly by the marriage at 0.48% (Figure 3.6 & 3.7).

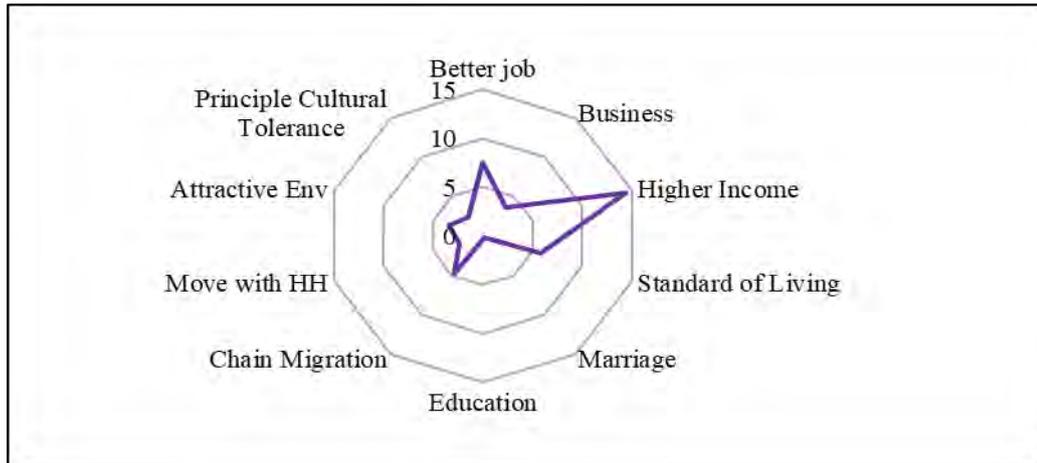


Figure 3.6 Specific reasons of pull factors of in-migration in the South district of Sikkim

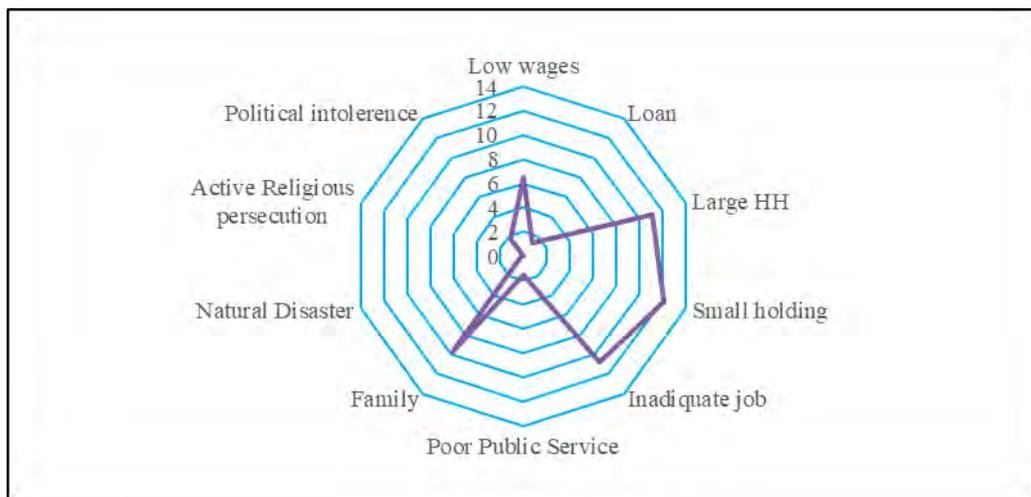


Figure 3.7 Specific reasons of push factors of in-migration in the South district of Sikkim

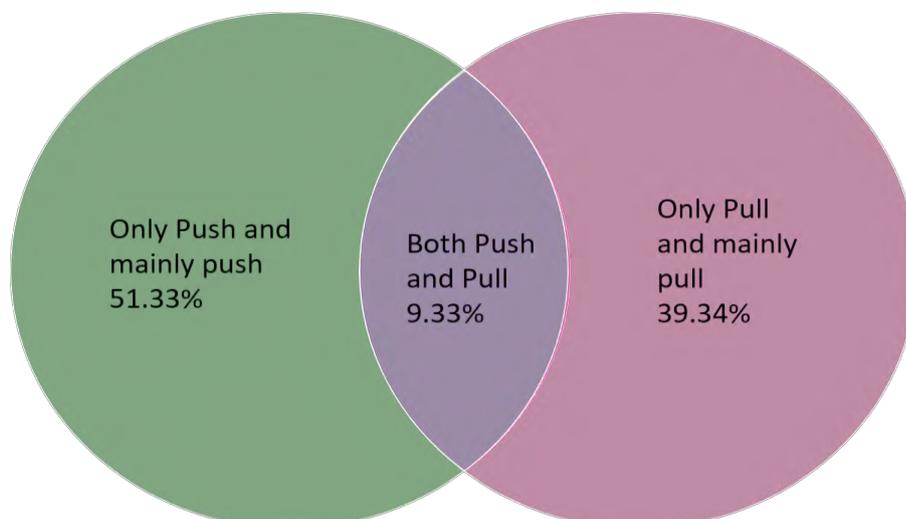


Figure 3.8 Overlap of push and pull factors in the South district of Sikkim

3.6 Migration pattern in the East district of Sikkim

3.6.1 Number of in-migrants in the East district of Sikkim according to their source of origin

Census of India has provided the population classified by place of birth in migration table D1. Table D1 of Sikkim during the Census 1991, 2001 and 2011 revealed that the population classified by place of birth in the following categories, which are-

- A) Born in India
 - 1) Within the state of enumeration
 - i) Born in place of enumeration
 - ii) Born elsewhere in district of enumeration
 - 2) States in India beyond the state of enumeration
- B) Born in countries beyond India

Table 3.6 shows the number of in-migrants in the East district of Sikkim according to their sources of origin or place of birth within India during the Census 1991, 2001 and 2011. In the Census 1991, East district of Sikkim had a total population of 178452, among which 168782 numbers of persons were born elsewhere within India. A total of 148038 persons were born within the state of enumeration, whereas 114112 persons of the district were born in the place of enumeration. A total of 25898 numbers of persons were born elsewhere in the district of enumeration, whereas only 8028 persons were born in the other districts of the state. On the other hand, 20744 persons were born in the states in India beyond the state of enumeration (Figure 3.9).

So, it is found that the 9670 numbers of persons of the district were born in outside of India during the decade 1981-1991 and 20744 numbers of persons of the district were born in outside of the state but within the other states of India. It is revealed that the in-migrants of the district in the Census 1991 were 30414, who are in-migrated from elsewhere beyond the state to the East district of Sikkim.

In the Census 2001, 11324 numbers of persons of the district were recorded as in-migrated from elsewhere beyond India. 33276 numbers of populations were in-migrated from the other states of India beyond the state of enumeration. 41414 and 14683 numbers of populations of the district were born elsewhere in the district of enumeration and other districts of the state respectively (Figure 3.9). So, it is found

from Table 3.6 that there is a large increase in the proportion of in-migrants to the district during the decade 1991-2001.

According to Census 2011, the total population of the East district of Sikkim is 283583 among which 12069 numbers of populations were born outside India and migrated to the district. A total 44404 numbers of populations were migrated from the other states in India beyond the state of enumeration. On the other hand, 65779 and 20427 numbers of populations of the district were born elsewhere in the district of enumeration and in other districts of the state respectively (Figure 3.9). So, it is revealed from the analysis that the numbers of in-migrants in the district during the decade 2001-2011 was increased by 26.62%.

Table 3.6 Number of in-migration in the East district of Sikkim

In-migration	2011	2001	1991
Total Population	2,83,583	2,45,040	178452
Born within India	2,71,514	2,33,716	168782
Within the state of enumeration	2,27,110	2,00,440	148038
Born in the place of enumeration	1,40,904	1,44,343	114112
Born elsewhere in the district of enumeration	65,779	41,414	25898
Born in other districts of the state	20,427	14,683	8028
States in India beyond the state of enumeration	44,404	33,276	20744

Source: Census of India, 1991, 2001, 2011

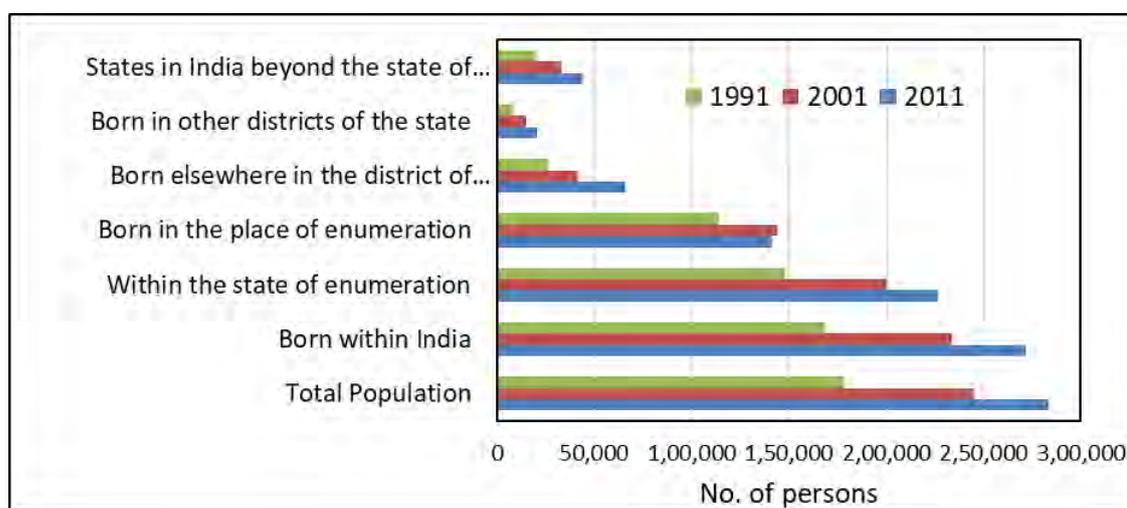


Figure 3.9 Number of in-migrants in the East district of Sikkim according to their sources of origin.

3.6.2 Pattern of in-migration in the East district of Sikkim, 1991

Table 3.7 Migration pattern in the East district of Sikkim from Other states in India and abroad (1991-2011)

State/UT	2011		2001		1991	
	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants
West Bengal	24,340	43.10	18,209	40.83	10691	35.17
Bihar	10,981	19.44	8,361	18.75	5471	18.00
Uttar Pradesh	1,837	3.25	1,351	3.03	1250	4.11
Assam	1,701	3.01	1,019	2.28	408	1.34
Jharkhand	628	1.11	274	0.61	0	0.00
Rajasthan	569	1.01	620	1.39	456	1.50
Odisha	511	0.90	320	0.72	97	0.32
Haryana	510	0.90	609	1.37	432	1.42
Manipur	401	0.71	139	0.31	33	0.11
Madhya Pradesh	256	0.45	125	0.28	128	0.42
Kerala	256	0.45	351	0.79	376	1.24
Meghalaya	249	0.44	157	0.35	77	0.25
Arunachal Pradesh	238	0.42	82	0.18	68	0.22
Uttarakhand	233	0.41	341	0.76	0	0.00
NCT of Delhi	227	0.40	126	0.28	93	0.31
Andhra Pradesh	215	0.38	108	0.24	206	0.68
Maharashtra	189	0.33	135	0.30	93	0.31
Punjab	169	0.30	155	0.35	300	0.99
Himachal Pradesh	162	0.29	132	0.30	83	0.27
Jammu & Kashmir	158	0.28	190	0.43	71	0.23
Nagaland	125	0.22	53	0.12	26	0.09
Tamil Nadu	96	0.17	93	0.21	145	0.48
Karnataka	91	0.16	112	0.25	46	0.15
Tripura	90	0.16	47	0.11	22	0.07
Gujarat	47	0.08	57	0.13	34	0.11
Mizoram	43	0.08	15	0.03	12	0.04
Chhattisgarh	34	0.06	66	0.15	0	0.00
Andaman & Nicobar Islands	26	0.05	3	0.01	21	0.07
Chandigarh	12	0.02	22	0.05	24	0.08
Goa	7	0.01	1	0.00	31	0.10
Daman & Diu	1	0.00	0	0.00	4	0.01
Dadra & Nagar Haveli	1	0.00	0	0.00	29	0.10
Puducherry	1	0.00	3	0.01	4	0.01
Born Outside India	11,920	21.11	11,324	25.39	9343	30.73
Unclassifiable	149	0.26	0	0.00	327	1.08
Total	56473	100	44600	100	30401	100

Source: Census of India, 2011,2001,1991

For the migration pattern in the district, only in-migration to the district has been taken into consideration. Table 3.7 revealed the in-migration pattern in the East district of Sikkim. Almost all the states and union territories of India arranged rank wise according to percentage of in-migrants proportion from where the migration to the East district of Sikkim has taken place. According to census of India, 1991 the total number of in-migrants to the district was 30401. Among the total number of in-migrants of the district more than 50% moved out from the state of West Bengal and Bihar, these two states are most two neighbouring states of Sikkim. Table 3.7 shows that West Bengal occupied first rank with the share of 35.17% of in-migration out of total in-migrants of 30401 followed by Bihar 18% and Uttar Pradesh 4.11% of the total in-migrants to the district.

Other states and Union territories have a little contribution in the in-migration to the district. Rajasthan, Haryana, Assam and Kerala were the only four states which had contributed in between one to two percent of out-migrants of the total in-migration to the East district of Sikkim during the decade 1981-1991. Rajasthan occupied 1.5% of in-migrants to the district followed by Haryana 1.42%, Assam 1.34% and Kerala 1.24%. Sixteen states and Union territories of India had contributed 0.1% to less than 1% of in-migration to the East district of Sikkim. Punjab had contributed 0.99% of the total in-migrants to the district followed by Andhra Pradesh 0.68%, Tamil Nadu 0.48%, Madhya Pradesh 0.42%, Odisha 0.32%, Maharashtra and NCT of Delhi both were contributed 0.31%, Himachal Pradesh 0.27%, Meghalaya 0.25%, Jammu & Kashmir 0.23%, Arunachal Pradesh 0.22%, Karnataka 0.15%, Manipur and Gujarat both were 0.11% and Goa and Dadra & Nagar Haveli both only 0.10%.

Only seven states and Union territories had contributed less than 0.1% in-migrants to the East district of Sikkim. Nagaland had contributed only 0.09% out of in-migrants to the district followed by Chandigarh 0.08%, Tripura and Andaman and Nicobar Island both were 0.07%, Mizoram 0.04% and Daman & Diu and Pondicherry both had contributed only 0.01% of in-migrants to the district.

Among the in-migrants in the East district of Sikkim, 30.73% of the total number of in-migrants population of the district had out-migrated from anywhere outside of India, where they were born. According to the census 1991, 1.08% of in-migrants of the total in-migrants of the district were unclassified from where they were moved out.

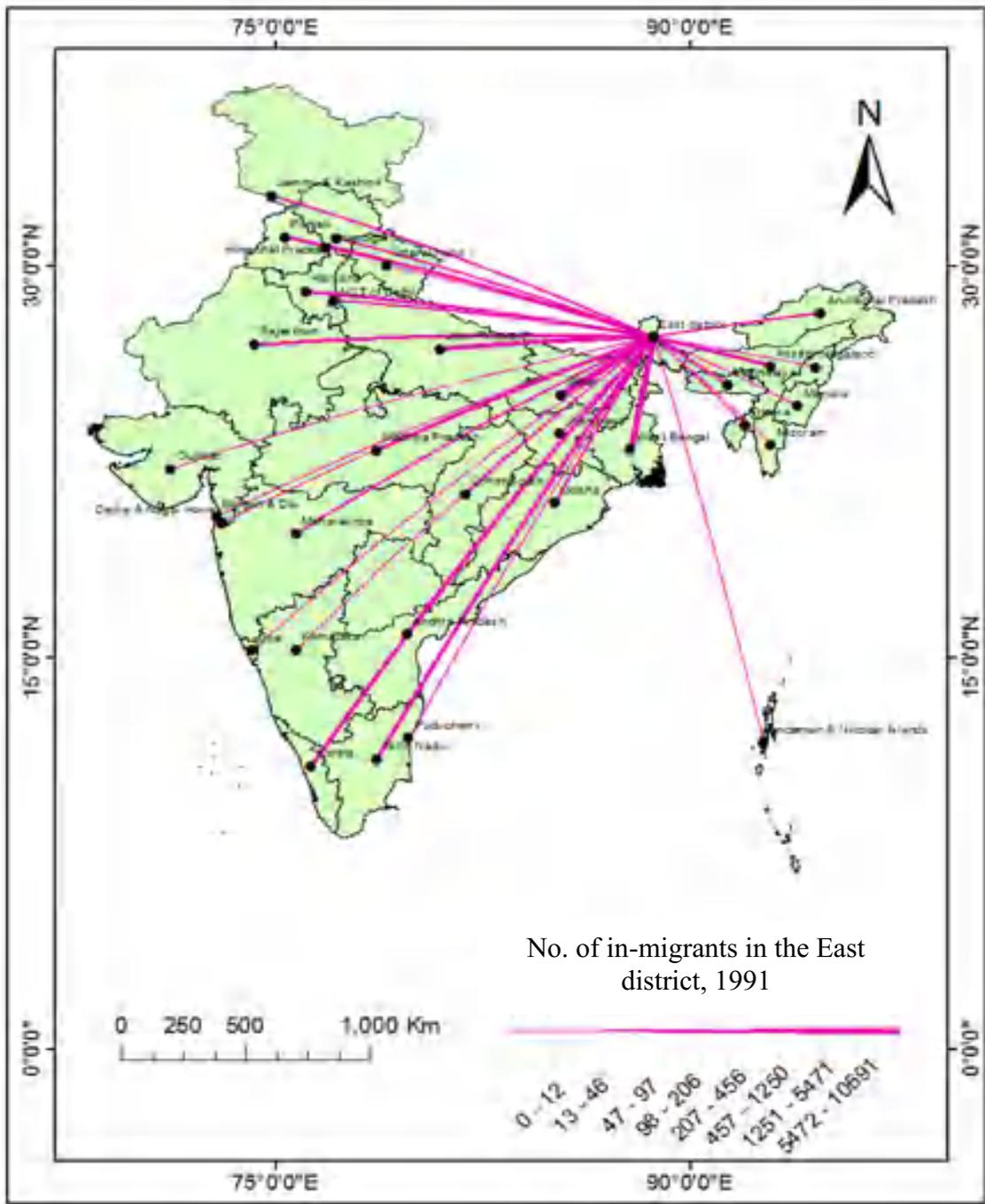


Figure 3.10 Migration to East district from other states of India during Census 1991

3.6.3 Pattern of in-migration in the East district of Sikkim, 2001:

Table 3.7 represents the list of percentage-wise rank of the different states and Union territories of India from where out-migrated people infiltrated to the East district of Sikkim as in-migrated population during the decade 1991-2001. According to census of India, 2001, the total number of in-migrants to the district was 44600. Among the states of India West Bengal holds first rank by out-migration of 18209 people of total in-migrants to the East district of Sikkim, which was 40.83% of the total in-migrants to the district. This is followed by Bihar, from where 8361 people were out migrated to the East district of Sikkim, which was 18.75% of the total in-migrants of the district. Uttar Pradesh takes third position in case of out-migration of 1351 people from its territorial extent to the East district of Sikkim, which was 3.03% of the total in-migration of the district followed by Assam (2.28%), Rajasthan (1.39%), Haryana (1.37%), Madhya Pradesh (0.79%), Uttarakhand (0.76%), Odisha (0.72%), Jharkhand (0.61%), Jammu & Kashmir (0.43%), Meghalaya and Punjab (0.35%), Manipur (0.31%), Maharashtra and Himachal Pradesh (0.30%), NCT of Delhi (0.28%), Karnataka (0.25%), Andhra Pradesh (0.24%), Tamil Nadu (0.21%), Arunachal Pradesh (0.18%), Chhattisgarh (0.15%), Gujarat (0.13%), Nagaland (0.12%), Tripura (0.11%) and Mizoram had contributed only 0.03% of the total in-migrants of the district.

Among the Union territories of India, Andaman & Nicobar Islands and Puducherry both had contributed only 0.01% of out-migration to the East district of Sikkim from its territorial extent. Other Union territories had no contribution to the in-migration of the district.

Among the in-migrants in the East district of Sikkim, 25.39% of the total number of in-migrants population of the district had out-migrated from outside of India, where they were born.

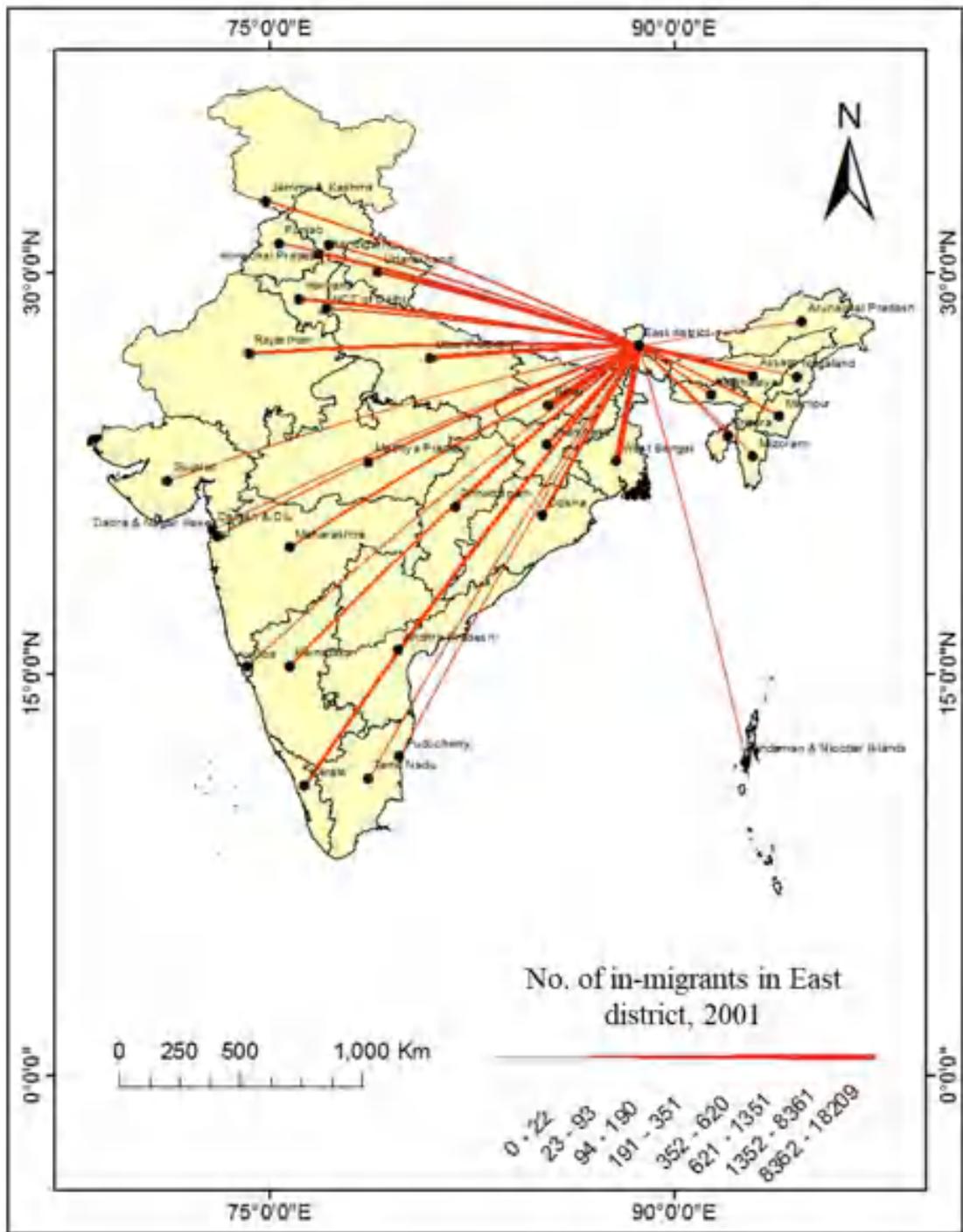


Figure 3.11 Migration to East district from other states of India during Census 2001

3.6.4 Pattern of in-migration in the East district of Sikkim, 2011

Table 3.7 shows the percentage-wise rank of the different states and Union territories of India from where out-migrated people penetrated to the East district of Sikkim as in-migrated population during the decade 2001-2011. According to Census of India, 2011 it is found that the total number of in-migrants of the district were 56473 persons. Among the states where from-in-migrants moved out, the state of West Bengal ranked first by the out-migration of 24340 persons of the total in-migrants to the East district of Sikkim which forms 43.10% of the total in-migrants of the district. The second position is held by Bihar in terms of numbers of out-migrants to the district. 10981 numbers of persons were out-migrated from Bihar and entered into the East district of Sikkim as in-migrants. 19.44% of the total in-migrants of the district according to Census, 2011 were migrated from Bihar. Uttar Pradesh takes third position in terms of out-migration of 1837 numbers of persons from its state's territorial extent and admitted to the East district of Sikkim, which forms only 3.25% of the total in-migrants of the district. Assam ranked fourth regarding the out-migration process, who settled down into the East district of Sikkim. 3.01% among the total in-migrants of the district came from the state of Assam followed by Jharkhand (1.11%), Rajasthan (1.01%), Odisha and Haryana (0.90%), Manipur (0.71%), Madhya Pradesh and Kerala (0.45%), Meghalaya (0.44%), Arunachal Pradesh (0.42%), Uttarakhand (0.41%), (0.61%), NCT of Delhi (0.40%), Andhra Pradesh (0.38%), Maharashtra (0.33%), Punjab (0.30%), Himachal Pradesh (0.29%), Jammu & Kashmir (0.28%), Nagaland (0.22%), Tamil Nadu (0.17%), Karnataka and Tripura (0.16%), Gujarat and Mizoram (0.08%), Chhattisgarh (0.06%) and Goa had contributed only 0.01 % of the total in-migrants of the district.

Among the Union territories of India only Andaman & Nicobar Islands and Chandigarh were responsible for the infiltration of in-migrants to the district. These two Union territories of India had contributed only 0.05% and 0.02% of out-migration to the East district of Sikkim from its territorial extent respectively. Other Union territories had no contribution to the in-migration of the district.

Among the in-migrants in the East district of Sikkim, 21.11% of the total number of in-migrants population of the district had out-migrated from outside of India, where they were born. According to the census, 2011, 0.26% of in-migrants of the total in-migrants of the district were unclassified from where they were moved out.

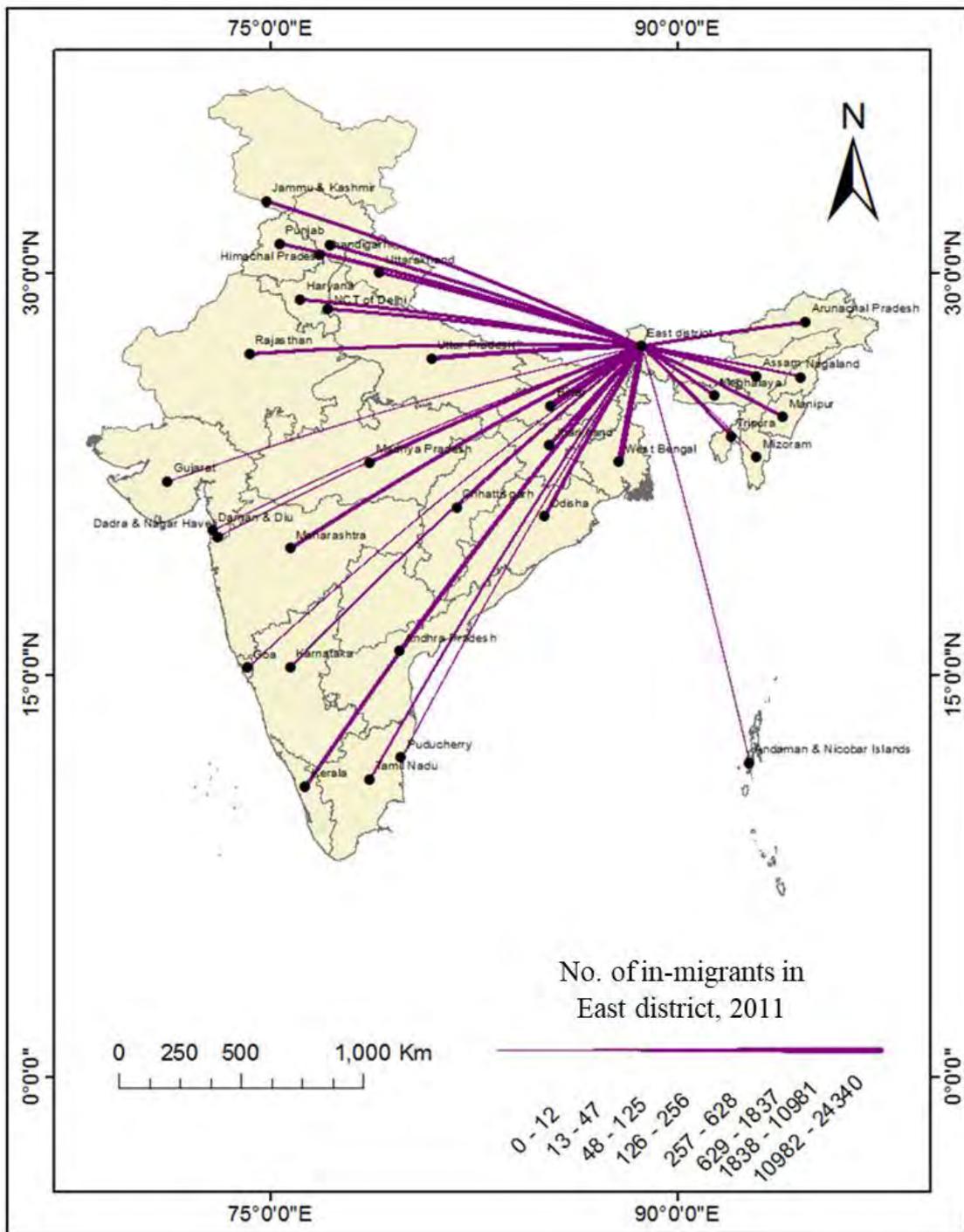


Figure 3.12 Migration to East district from other states of India during Census 2011

3.7 Migration pattern in the South district of Sikkim

3.7.1 Number of in-migrants in the South district of Sikkim according to their source of origin

According to Census of India, in-migrants of a particular place can be divided into different categories according to their source of origin or the place of birth. There are two main categories such as 1) Born within India and 2) Born outside India. Born within India further can be split into five categories, which are – i) within the state, ii) place of enumeration, iii) within the district, iv) other districts of the state and v) other states of India beyond the state of enumeration. In this study born outside the state i.e., other states of India or outside the country has been considered as in-migrants in the district.

In Census 1991, the total population of the South district of Sikkim was 98604 among which 94441 numbers of persons were born within India and 4163 numbers of persons were born outside of India and in-migrated to the district. 6339 numbers of population were in-migrated to the district, who were born in other states of India beyond the state of enumeration. Whereas, 12850 numbers of population were born elsewhere in the district of enumeration and 6669 numbers of persons were born in other districts of the state (Figure 3.13). Total in-migrated populations of the district were 10.99% in the Census 1991 (Table 3.8).

According to Census 2001, 4725 numbers of populations of the district were born elsewhere outside of India and 11303 numbers of populations of the district were born within India, but beyond the state of Sikkim, which is the place of enumeration. A total of 16271 and 10359 numbers of persons were born elsewhere in the South district of Sikkim and other districts of the state of Sikkim respectively. During the decade 1991-2001, total numbers of in-migrants in the district was 16028, which is 12.19% of the district's total population. In-migrants of the South district of Sikkim have a decadal increase during 1991-2001 by 52.62% (Table 3.8).

The total population of the South district of Sikkim is 146850 in the Census, 2011, among which 4268 numbers of populations were born outside of India. During the decade 2001-2011 this number decreased by 9.67%. According to Census 2011, 13122 numbers of populations of the district were born in other states of India beyond the state of enumeration. Total numbers of in-migrants of the district in the Census

2011 was 17390, which was 16028 in the last Census. So, it is revealed that 11.84% of the population are in-migrants. During the decade 2001-2011 there is very little increase in immigrants, which is 8.5% (Table 3.8).

Table 3.8 Number of in-migration in the South district of Sikkim

In-migration	2011	2001	1991
Total Population	1,46,850	1,31,525	98604
Born within India	1,42,582	1,26,800	94441
Within the state of enumeration	1,29,460	1,15,497	88102
Born in the place of enumeration	96,284	88,867	68583
Born elsewhere in the district of enumeration	20,601	16,271	12850
Born in other districts of the state	12,575	10,359	6669
States in India beyond the state of enumeration	13,122	11,303	6339

Source: Census of India 1991, 2001, 2011

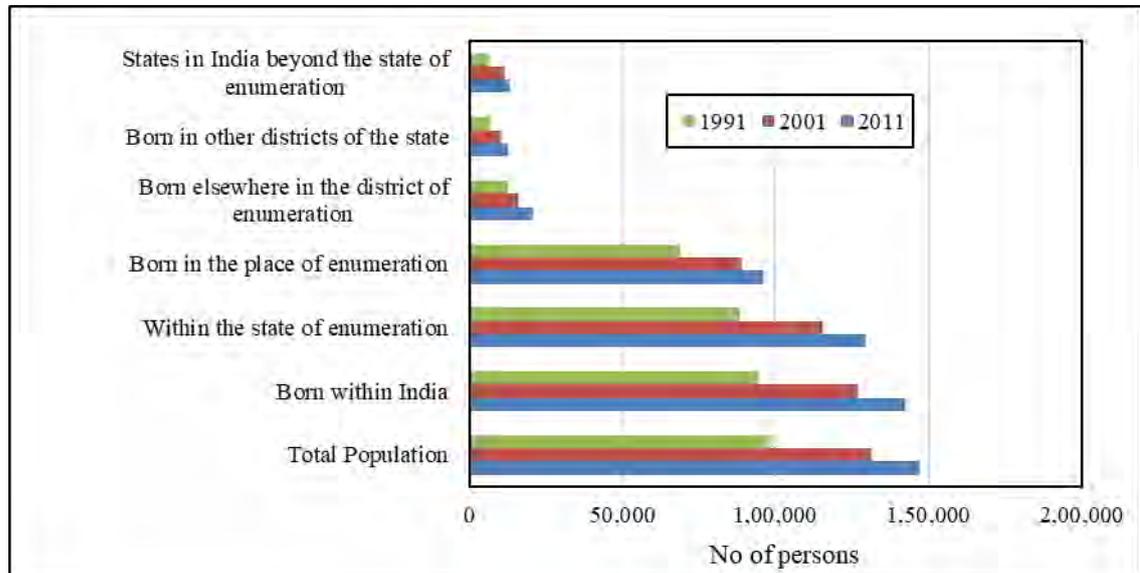


Figure 3.13 Number of in-migrants in the South district of Sikkim according to their sources of origin.

3.7.2 Pattern of in-migration in the South district of Sikkim, 1991:

Migration pattern of the South district of Sikkim during the decade 1981-1991 revealed (Table 3.9) that the district is having the in-migrants from the different states and union territories of India. Both push and pull factors and some specific reasons for migration are responsible for the process of migration to the district. West Bengal holds the first rank among the states of India in terms of out-migration and who penetrated to the South district of Sikkim. According to Census of India 1991, 3794 numbers of persons were out-migrated from West Bengal and entered into the district, which is 36.14% of

the total in-migrants of the district. From the state of Bihar 1304 numbers of persons were out-migrated to enter into the district during 1981-1991, which is 12.42% among the total number of in-migrants of the district. Uttar Pradesh ranked third in terms of out-migration of population from its territorial extent to the South district of Sikkim followed by Assam (1.42%) Haryana (0.92%), Manipur (0.69%), Rajasthan (0.53%), Kerala (0.48%), Andhra Pradesh (0.47%), Tamil Nadu (0.42%), Punjab (0.38%), Tripura (0.37%), Nagaland (0.30%), Himachal Pradesh (0.29%), Arunachal Pradesh (0.24%), Meghalaya (0.14%), Odisha (0.11%), Madhya Pradesh and Maharashtra (0.10%), Jammu & Kashmir (0.09%), NCT of Delhi and Goa (0.07%), Karnataka (0.04%) and Mizoram (0.02%). However, Gujarat had contributed only 0.01% of the total in-migrants of the district.

Among the Union territories of India Andaman & Nicobar Islands had contributed only 0.09% of out-migration to the South district of Sikkim from its territorial extent, followed by Chandigarh and Daman & Diu (0.04%) and Dadra & Nagar Haveli (0.02%). Other Union territories had no contribution to the in-migration of the district.

Among the in-migrants in the South district of Sikkim, 39.09% had out-migrated from their place of last residence outside of India. According to the census, 1991, 0.56% of in-migrants of the total in-migrants of the district were unclassified from where they were moved out.

Table 3.9 Migration pattern in the South district of Sikkim from Other states in India and abroad (1991-2011)

State/UT	2011		2001		1991	
	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants
West Bengal	7480	43.01	6739	42.05	3794	36.14
Bihar	2579	14.83	2459	15.34	1304	12.42
Uttar Pradesh	652	3.75	625	3.90	457	4.35
Assam	649	3.73	390	2.43	149	1.42
Jharkhand	259	1.49	85	0.53	0	0.00
Andhra Pradesh	210	1.21	16	0.10	49	0.47
Madhya Pradesh	185	1.06	18	0.11	11	0.10
Odisha	154	0.89	40	0.25	12	0.11
Manipur	123	0.71	120	0.75	72	0.69
Arunachal Pradesh	121	0.70	36	0.22	25	0.24

State/UT	2011		2001		1991	
	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants	No. of in-migrants	% of in-migrants
Haryana	97	0.56	104	0.65	97	0.92
Rajasthan	85	0.49	94	0.59	56	0.53
Punjab	83	0.48	51	0.32	40	0.38
Jammu & Kashmir	74	0.43	94	0.59	9	0.09
Nagaland	65	0.37	51	0.32	32	0.30
Meghalaya	52	0.30	47	0.29	15	0.14
Uttarakhand	47	0.27	45	0.28	0	0.00
Tamil Nadu	44	0.25	27	0.17	44	0.42
Kerala	31	0.18	68	0.42	50	0.48
NCT of Delhi	30	0.17	24	0.15	7	0.07
Maharashtra	29	0.17	13	0.08	10	0.10
Himachal Pradesh	23	0.13	77	0.48	30	0.29
Karnataka	14	0.08	6	0.04	4	0.04
Tripura	9	0.05	40	0.25	39	0.37
Chhattisgarh	9	0.05	7	0.04	0	0.00
Gujarat	9	0.05	4	0.02	1	0.01
Chandigarh	7	0.04	8	0.05	4	0.04
Mizoram	1	0.01	15	0.09	2	0.02
Puducherry	1	0.01	0	0.00	0	0.00
Daman & Diu	0	0.00	0	0.00	4	0.04
Dadra & Nagar Haveli	0	0.00	0	0.00	2	0.02
Goa	0	0.00	0	0.00	7	0.07
Andaman & Nicobar Islands	0	0.00	0	0.00	9	0.09
Born Outside India	4,248	24.43	4,725	29.48	4104	39.09
Unclassifiable	20	0.12	0	0.00	59	0.56
Total	17390	100	16028	100	10498	100

Source: Census of India, 2011,2001,1991

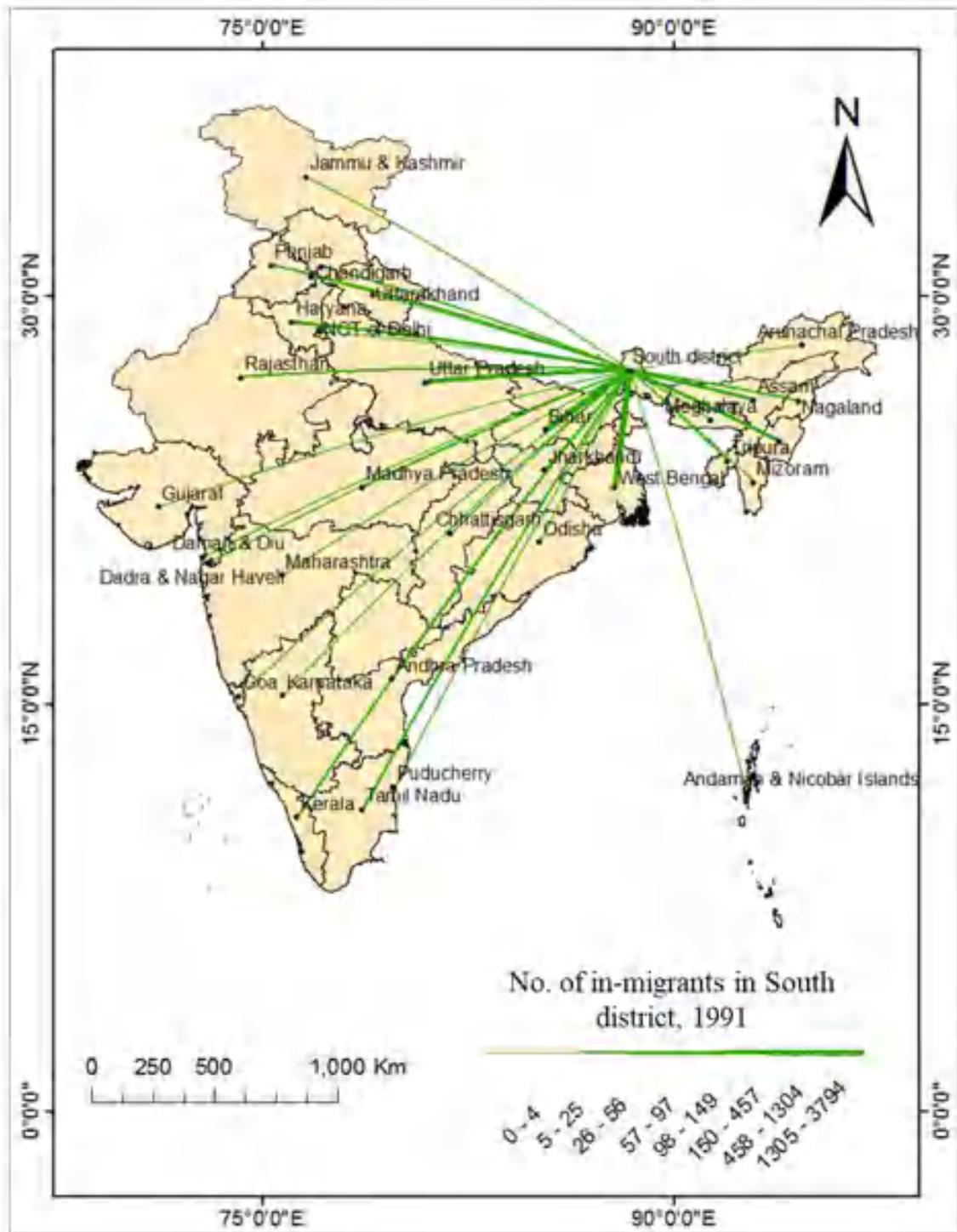


Figure 3.14 Migration to South district from other states of India during Census 1991

3.7.3 Pattern of in-migration in the South district of Sikkim, 2001

Table 3.9 represents Migration pattern of the South district of Sikkim during the decade 1991-2001. The percentage-wise rank of the different states and Union territories from where people out-migrated to infiltrate into the South district of Sikkim (Table 3.9)

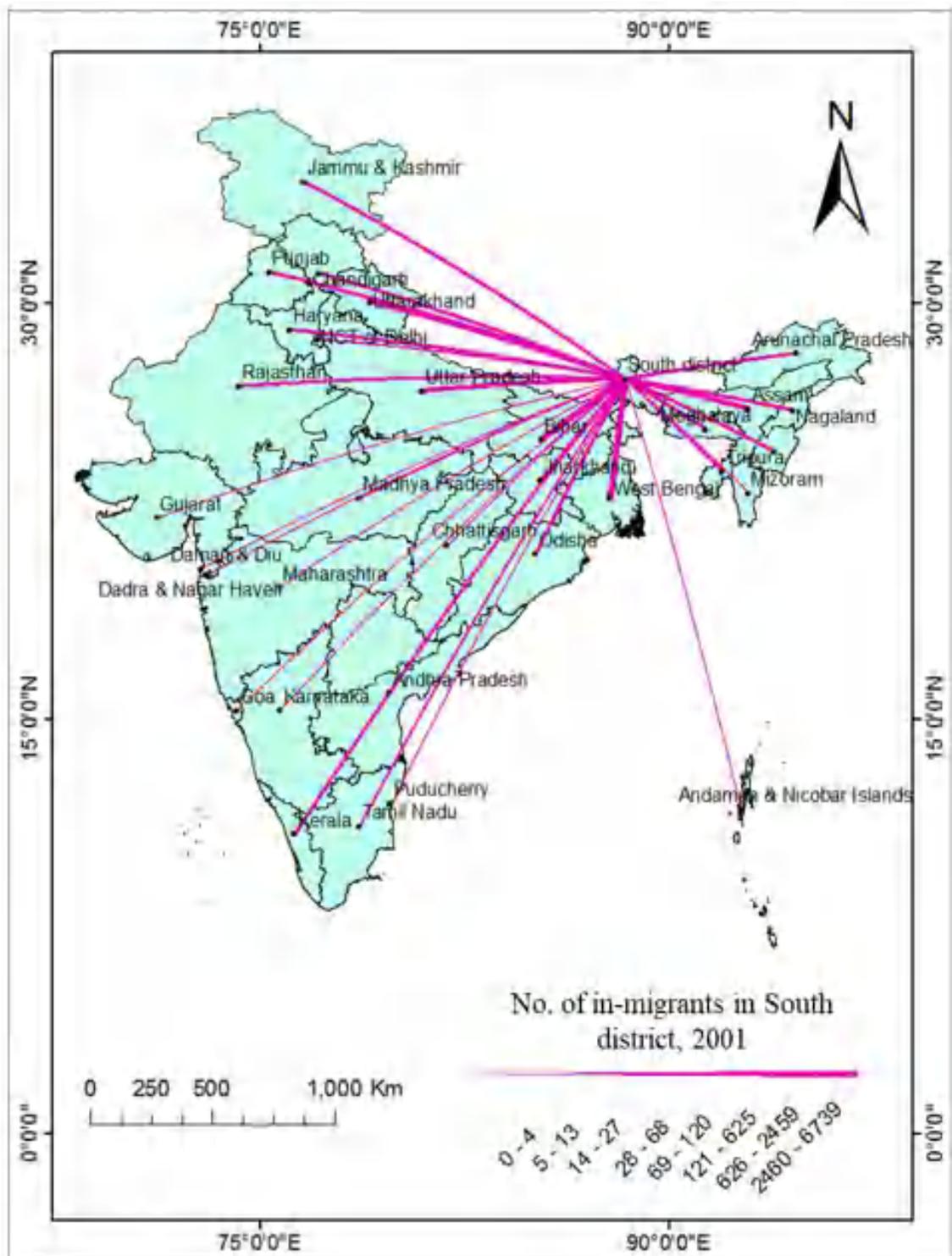


Figure 3.15 Migration to South district from other states of India during Census 2001

shows that among all the states of India, total 16028 numbers of persons have in-migrated into the district. West Bengal ranked first by out-migration of 6739 persons of total in-migrants to the South district of Sikkim, which was 42.05% among the total migrants of the district. After West Bengal, Bihar ranked second, from where 2459 persons were moved out and entered into the South district of Sikkim, which was 15.34% of the total in-migrants of the district. From Uttar Pradesh 625 numbers of persons were out-migrated and in-migrated into the South district of Sikkim, which was 3.90% among the total in-migrants of the district followed by Assam with 2.43%, Manipur (0.75%), Haryana (0.65%), Rajasthan and Jammu & Kashmir (0.59%), Jharkhand (0.53%), Himachal Pradesh (0.48%), Kerala (0.42%), Punjab and Nagaland (0.32%), Meghalaya (0.29%), Uttarakhand (0.28%), Odisha and Tripura (0.25%), Arunachal Pradesh (0.22%), Tamil Nadu (0.17%), NCT of Delhi (0.15%), Madhya Pradesh (0.11%), Andhra Pradesh (0.10%), Mizoram (0.09%), Maharashtra (0.08%), Karnataka and Chhattisgarh (0.04%), and Gujarat had contributed only 0.02% of the total in-migrants of the district.

Among the Union territories of India Chandigarh had contributed only 0.05% of out-migration to the South district of Sikkim from its territorial extent. Other Union territories had no contribution to the in-migration of the district during the decade 1991-2001. Among the in-migrants in the South district of Sikkim 29.48% had out-migrated from elsewhere outside of India.

3.7.4 Pattern of in-migration in the South district of Sikkim, 2011

Table 3.9 shows the percentage-wise rank of the different states and Union territories of India from where out-migrated people infiltrated to the South district of Sikkim as in-migrated population during the decade 2001-2011. According to census of India 2011, the total number of in-migrants to the district was 17390. Among the states of India West Bengal holds first rank by out-migration of 7480 people of total in-migrants to the South district of Sikkim, which was 43.01% of the total in-migrants to the district. This is followed by Bihar, from where 2579 people were out migrated for the South district of Sikkim, which was 14.83% of the total in-migrants of the district. Uttar Pradesh takes third position in sense of out-migration of 652 people from its territorial extent to

the South district of Sikkim, which was 3.75% of the total in-migration of the district. Assam ranks fourth in the sense of in-migration of the district with the 3.73% of the total in-migrants of the district followed by Jharkhand (1.49%), Andhra Pradesh (1.21%), Madhya Pradesh (1.06%), Odisha (0.89%), Manipur (0.71%), Arunachal Pradesh (0.70%), Haryana (0.56%), Rajasthan (0.49%), Punjab (0.48%), Jammu & Kashmir (0.43%), Nagaland (0.37%), Meghalaya (0.30%), Uttarakhand (0.27%), Tamil Nadu (0.25%), Kerala (0.18%), NCT of Delhi and Maharashtra (0.17%), Himachal Pradesh (0.13%), Karnataka (0.08%), Tripura (0.05%), Gujarat and Chhattisgarh (0.05%), and Mizoram had contributed only 0.01% of the total in-migrants of the district.

Among the Union territories of India, Chandigarh and Puducherry had contributed only 0.04% and 0.01% of out-migration to the South district of Sikkim from its territorial extent respectively. Other Union territories had no contribution to the in-migration of the district.

24.43% of the total number of in-migrants of the South district of Sikkim had out-migrated from outside of India, where they were born or their place of last residence. According to the census, 2011 0.12% of in-migrants among the total in-migrants of the district were unclassified from where they were moved out.

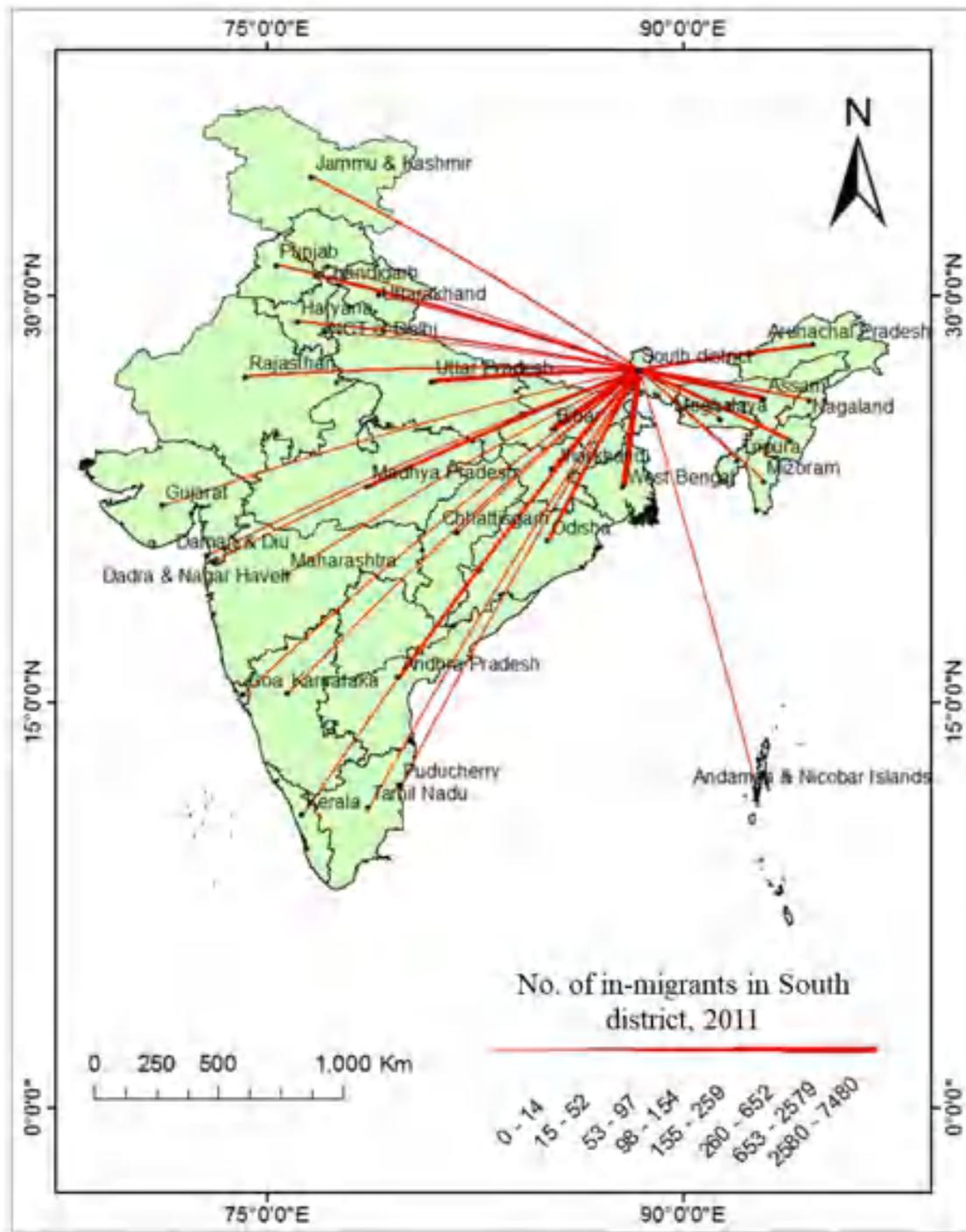


Figure 3.16 Migration to South district from other states of India during Census 2011

3.8 Summary

In this chapter, factors and patterns of migration in the East and South districts of Sikkim have been discussed. In this chapter, migration history of Sikkim along with internal, national and international migration of the state was also discussed. This chapter is mainly based on secondary data on Migration, i.e., the Migration Tables, D-series of 1991, 2001 and 2011 published by the Census of India, Govt. of India. Factors of migration along with specific reasons for migration have been discussed in this chapter.

The pattern of migration of the study area has been represented by the flow map of India. Maps showing the in-migrants of the study area have been sourced from Census of India where data on in-migration from all over India is presented. The data cuts across for different socio-economic and socio-demographic strata of population. The pattern shows that in-migrants of the study area mainly came from the neighbouring states of West Bengal and Bihar and the outside of India. Whereas, from the union territories of India a very little proportion of the population has come out and in-migrated to the study area.

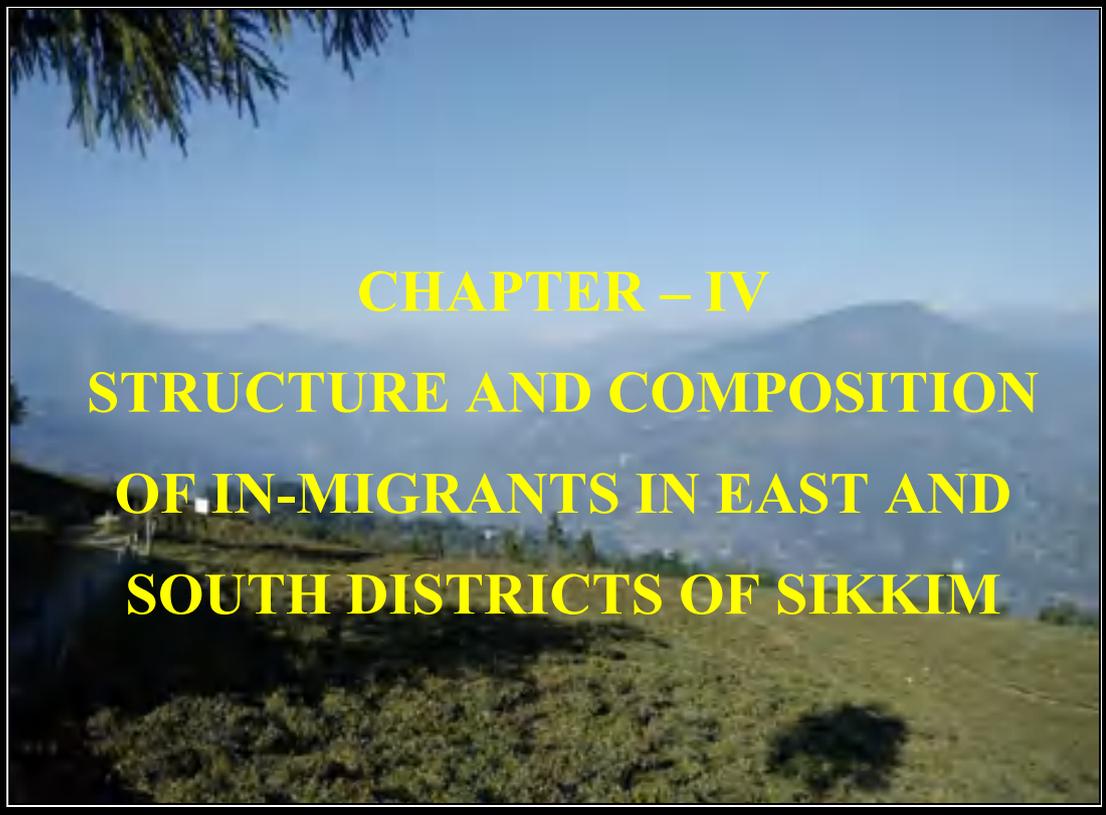
The report revealed that mainly push and mainly pull factors are largely responsible for the in-migration in the study area. A very little portion of in-migrants in the study area was pushed or pulled by different factors. So, it can be said that the factors and pattern of migration in the East and South districts of Sikkim have an important role in the whole migration process of the study area.

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CHAPTER – IV
STRUCTURE AND COMPOSITION
OF IN-MIGRANTS IN EAST AND
SOUTH DISTRICTS OF SIKKIM

CHAPTER – IV

STRUCTURE AND COMPOSITION OF IN-MIGRANTS IN EAST AND SOUTH DISTRICTS OF SIKKIM

4.1 Introduction

The present chapter focuses on the structure and composition of in-migrants in East and South districts of Sikkim. Migration of any location at any time may cause massive scale changes within the length and shape of the populace (Hassan, 2005). The take a look at of structure and composition of migrants is of vital importance because the birth rate, death rate and migration determine the scale of the population, the populace boom rate and for this reason the structure of the populace (Jhingan et al., 2005). Sex composition, age composition, rural-urban composition, the economic or occupational composition is more important among the various elements of population composition (Maurya, 2014). Among the various components of population aggregation, gender composition, age composition and economic composition occupy a prominent place for the social scientists (Chandna, 2006). The separate statistics for men and women are crucial for numerous sorts of planning and the analysis of others demographic traits along with natality, mortality, migration, marital fame, economic traits, etc. (Hassan, 2005). The balance between the two genders influences the social and economic relation inside a community (Roy, 2015). For the reason that genders play partly contrasting and partially complementary roles inside the economy and society, the have a look at of sex composition assumes brought significance for population geographers (Roy, 2015).

Similarly, social scientists also have a special interest in the study of age composition as social relations within a community are affected considerably by the age structure (Poston and Bouvier, 2010). Not only that, many types of planning, particularly planning of community institutions and services, manpower supply, etc. are guided by the age structure of the populations (Clarke and Fisher, 2013). Age is an important variable in measuring potential school population, potential voting population, potential manpower, future population projections and projections for the requirements of teachers, doctors, technical hands, armed personnel, etc (Kumar, 2009). Age is an important variable in the studies of mortality, fertility and other demographic characteristics, like dependency ratio, etc. (Namboodiri, 2013). It is in this context that

the studies about sex and age composition of a population become important for a population which is engaged in regional analysis.

So, the study of structure and composition of the migrant population in the study area has great importance to examine the whole population structure in the study area. This chapter has also tried to examine the rate of migration by applying the migration rate method along with in-migration rate method, out-migration rate method, net migration method and gross migration rate method in both the East and South districts of Sikkim. Different types of structure and composition of the migrant population in the study area would be discussed in this chapter. Age structure, occupation structure, sex composition, rural-urban composition, marital status has been discussed in this chapter to find out the demographic characteristics of the migrants in the study area. This study is also useful for formulating economic and other policies by the government, economists, sociologists, politicians and planners along with demographers.

4.2 Database and Methodology

4.2.1 Database

This chapter is based on secondary sources of data. The secondary data were collected from the reports published by the Census of India during 1991 to 2011 and different demographic reports published by the Government of Sikkim during the period of 2001 to 2014. In this chapter, the changes of structure and composition of in-migrants in East and South districts of Sikkim have been discussed between 1991 and 2011. But due to dissimilarities in data in 1991 and 2011 census, the researcher also had to use 2001 census data. The demographic structure of migrants and the native population of the study have been analysed and presented by the different statistical and cartographic techniques. These are age structure, sex composition, rural-urban composition, occupational structure, marital status. On the other hand, the migration rate in the study area has also been measured using different standard methods.

4.2.2 Methodology

There are different types of measurement framed up to identify the rate of migration of the migrants in the East and South districts of Sikkim. The rate of migration has been measured by the different methods such as 1) Migration rate method, 2) Vital statistics methods and 3) Census survival methods (Jhingan et al., 2016).

Techniques used for measuring internal migration can be categorized into two categories, which are 1) Direct techniques or measurement and 2) Indirect techniques or measurement (Jhingan et al., 2005). Direct techniques including place of the birth method, duration of residence approach, place of last residence approach and place of residence at a fixed prior date (Srivastava and Srivastava, 2004). Indirect techniques have three estimations of migration, which are 1) Migration rate method, 2) Vital statistics method and 3) Census survival or survival method (Jhingan et al., 2005).

The migration rate of the study area has been estimated with the help of in-migration rate method, out-migration rate method, net migration rate method and Gross migration rate method (Srivastava and Srivastava, 2004).

The data have been analysed statistically with the help of SPSS software version 26.0. Some cartographic techniques have been used to represent the analysed data such as pie diagram, bar diagram etc. by MS excel 2019.

❖ **Migration Rate (MR) Method**

Migration rate method is the common method to measure or estimate the rate of migration in any particular place with four different methods, which are In- migration rate, out-migration rate, Net migration rate and Gross migration rate (Srivastava and Srivastava, 2004).

❖ **In Migration Rate (IMR) Method**

In migration rate has been measured by the following formula:

$$IR = \frac{IM_n}{P_n} \times 1000 \dots \dots \dots 4.1$$

Where, IR = In migration rate

IM_n = The number of in – migrants to an area in a given year

P_n = Mid year population in the area

❖ **Out Migration Rate (OMR) Method**

Out-migration rate has been measured by the following formula:

$$OMR = \frac{OM_n}{P_n} \times 1000 \dots \dots \dots 4.2$$

Where, OMR = Out migration rate

OM_n = The number of out – migrants to an area in a given year

P_n = Mid year population in the area

❖ **Net Migration Rate (NMR) Method**

Net migration rate has been measured by the following formula:

$$NMR = \frac{IM - OM}{P_n} \times 1000 \dots \dots \dots 4.3$$

Where NMR = Net migration rate

IM = Number of in-migrants in a particular year

OM = Number of Out-migrants in a particular year

P_n = Mid year population in the area

❖ **Gross Migration Rate (GMR) Method**

Gross migration rate has been measured by the following formula:

$$GMR = \frac{IM + OM}{P_n} \times 1000 \dots \dots \dots 4.4$$

Where, GMR = Gross migration rate

IM = Number of in-migrants in a particular year

OM = Number of Out-migrants in a particular year

P_n = Mid year population in the area

4.3 Rate of Migration of the East district of Sikkim

4.3.1 In migration Rate (IMR) method

In-migration rate of the East district of Sikkim during the census of 1991 to 2011 revealed (Table 4.2) that the in-migration rate of the district is increasing in nature. In migration rate of the district during 1991 was 170.43 persons per thousand population in the district; it's slightly increased to 182.01 persons per thousand population in the district during the census 2001 and during the census 2011, the in-migration rate of the district was 199.14 (Figure 4.1) persons per thousand population in the district. The increasing nature of in-migration rate of the district indicates that the number of total in-migrants in the district has gradually increased during the last few decades.

4.3.2 Out migration rate (OMR) method

Out-migration rate of the East district of Sikkim during the census 1991 was 54.54 persons per thousand population; it's little increased during the census 2001 at 63.71 persons per thousand population and it's further increased by 75.67 persons per thousand population during the census 2011 (Table 4.2 and Figure 4.1). The gradual

increase in out-migration rate of the district revealed that the population of the district are out-migrated to the other states of the country due to avail some better socio-economic conditions for their livelihood.

Table 4.1 Rate of migration in the East district of Sikkim, 1991-2011

Methods	1991	2001	2011
In-migration rate	170.43	182.01	199.14
Out-migration rate	54.54	63.71	75.67
Net Migration rate	115.90	118.30	123.47
Gross migration rate	224.97	245.72	274.81

Source: Census of India, Migration table, 1991-2011

4.3.3 Net Migration rate (NMR) method

The net migration rate is the difference between in-migration rate and out-migration rate of a particular area. The net migration rate of the East district of Sikkim during the census 1991 to 2011 (Table 4.2) revealed the rate of the actual migration. The East district of Sikkim has too little growth of in-migrants in the district as per net migration rate. The net migration rate of the district shows (Figure 4.1) that it was 115.90 persons per thousand population during 1991; 118.30 persons per thousand population during 2001 and in 2011 it's also increased slightly by 123.47 persons per thousand population of the district. So, it can be said from the analysis that the in and out-migration of the district has minimized this gap decade by decade.

4.3.4 Gross migration rate (GMR) method

The gross migration rate of the East district of Sikkim during the census 1991, 2001 and 2011 shows the in-migration and out-migration of the district together. Table 4.2 shows that gross migration rate of the district was 224.97 persons per thousand population in 1991 has increased up to 245.72 persons per thousand population and it's further increased by 274.81 persons per thousand population during 2011 (Figure 4.1). It revealed the both in and out-migration process in the district has great importance in the structure and characteristics of the population in the district.

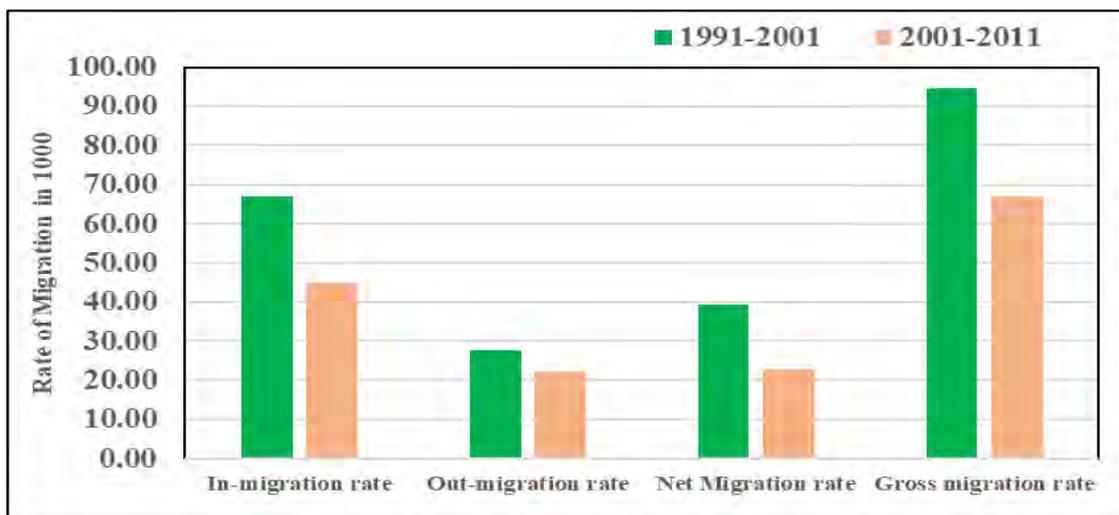


Figure 4.1 Different methods of migration rate in the East district of Sikkim, 1991-2011

4.4 Rate of Migration of the South district of Sikkim

4.4.1 In Migration rate (IMR) method

In-migration rate of the South district of Sikkim during the census 1991 to 2011 shows (Table 4.4) that there is a variety with ascent and decline in the different census. In -migration rate in 1991 was 106.51 persons per thousand population of the district has increased by 121.86 persons per thousand population during 2001 in the district. But, during the census 2011 in-migration rate of the district slightly decreased at 118.42 persons per thousand population (Figure 4.2). It indicates the declining nature of the in-migration process of the district due to several negative aspects for in-migrants in the district.

4.4.2 Out Migration rate (OMR) method

Out-migration rate of the South district of Sikkim during the censual year 1991 to 2011 shows (Table 4.4) that there is a gradual increase in out-migration rate in the district census by the census. In the census 1991 out-migration rate of the district was 24.49 persons per thousand population of the district; it increased by 32.91 persons per thousand population of the district during the census 2001 and it also slightly increased by 34.34 persons per thousand population of the district during 2011 (Figure 4.2). It revealed that the out-migrants of the district are enumerated to the other states of the country beyond the homeland.

Table 4.2 Rate of migration in the South district of Sikkim, 1991-2011

Methods	1991	2001	2011
In-migration rate	106.51	121.86	118.42
Out-migration rate	24.49	32.91	34.34
Net Migration rate	82.01	88.96	84.08
Gross migration rate	131.00	154.77	152.76

Source: Census of India, Migration table, 1991-2011

4.4.3 Net migration rate (NMR) method

The difference between in-migration and out-migration denotes the net migration rate. The net migration rate of the South district of Sikkim during 1991, 2001 and 2011 shows (Table 4.4) the variety in the rate of migration. In 1991, the net migration rate of the district was 82.01 persons per thousand population; it increased during 2001 by 88.96 persons per thousand population. But during the census 2011, the net migration rate of the district has declined up to 84.08 persons per thousand population of the district (Figure 4.2). It indicates that during the inter-censal period of 2001 and 2011 in-migrants of the district decreased, on the other hand, out-migrants of the district have increased in the district.

4.4.4 Gross migration rate (GMR) method

The gross migration rate of the South district of Sikkim during the census 1991 to 2011 shows (Table 4.4) the total rate of migration (in-migration and out-migration) of the district. The gross migration rate of the district during 1991 was 131 persons per thousand population and it has increased during 2001 by 154.77 persons per thousand population of the district. During the census 2011, the gross migration rate of the district has slightly decreased at 152.76 persons per thousand population of the district (Figure 4.2). It indicates the total number of migrants (in-migrants and out-migrants) has a decreasing trend in the district.

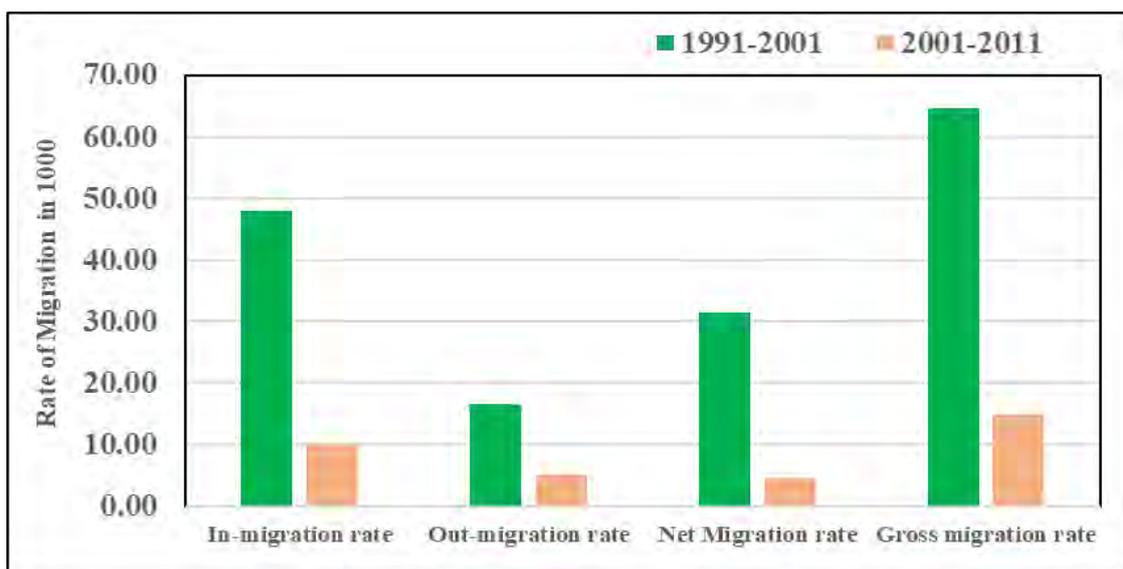


Figure 4.2 Different methods of migration rate in the South district of Sikkim, 1991-2011

4.5 Structure and composition of in-migrants in the East district of Sikkim

4.5.1 Sex Composition

Sex composition is one of the most important characteristics of population studies (Sharma, 2012). Changes in sex composition largely affect the underlying socio-economic and cultural pattern in a particular society (Doniwal, 2008). The sex ratio of migrants and the total population of East district is presented in Table 4.5.

Table 4.3 Male-female and sex ratio of in-migrants and total population in the East district of Sikkim, 1991

Place of Residence	In-migrants				Total Population			
	Total	Male	Female	Sex ratio	Total	Male	Female	Sex ratio
Total	64532	33514	31018	926	178452	95986	82466	859
Rural	46342	22749	23593	1037	146580	77862	68718	883
Urban	18190	10765	7425	690	31872	18124	13748	759

Source: Census of India, 1991

The sex ratio of the in-migrants in the district during 1991 was 926 females per thousand males. Whereas it is widely varied from rural to urban areas of the district. In the rural areas of the district the sex ratio was 1037 females per one thousand male migrants but, in urban areas of the district it was only 690 females per thousand male migrants. The main reason for migration in rural areas is that the migrants of the district were working as cultivators and agricultural labourers in most of the rural areas in the

district. In compare to the total population of the district sex ratio is varied with sex ratio of migrants in the district. The sex ratio of population in the district was 859 females per thousand males in 1991, whereas it was 883 females per thousand males in rural areas of the district (Figure 4.3d). The sex ratio in both the total population as a whole and population in rural areas of the district it was lower than the sex ratio of in-migrants.

Table 4.4 Male-female and sex ratio of in-migrants and total population in the East district of Sikkim, 2011

Place of Residence	In-migrants				Total Population			
	Total	Male	Female	Sex ratio	Total	Male	Female	Sex ratio
Total	144928	69157	75771	1096	283583	151432	132151	873
Rural	80777	36483	44294	1214	161096	87147	73949	849
Urban	36008	17969	18039	1004	122487	64285	58202	905

Source: Census of India, 2011

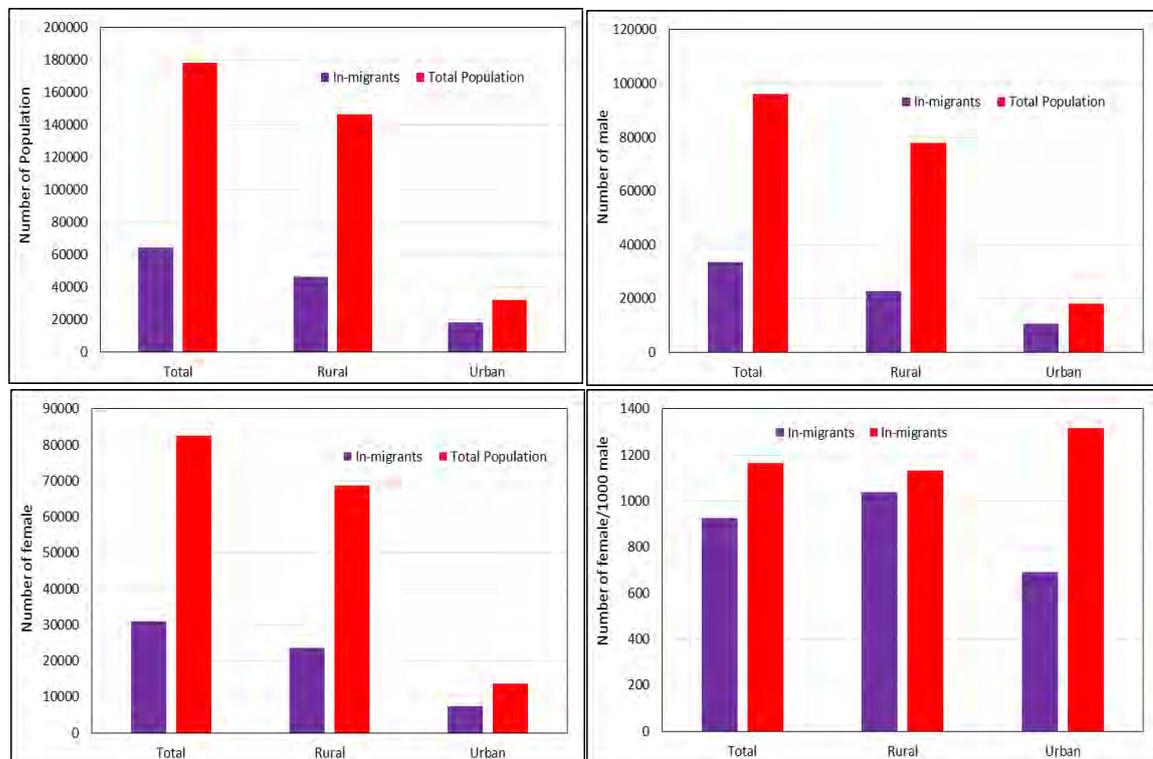


Figure 4.3 Comparison of in-migrants and total population in the East district, 1991

a. Total population b. Male c. Female and d. Sex ratio

On the other hand, in urban areas of the district, it was quite higher than the in-migrants of the district. The rural-urban differential in the sex composition of the in-migrants is

mainly due to the out-migration of the native female population from the rural areas of the district to the urban areas of the district as well as state because of marriage along with seeking for better life in the urban areas.

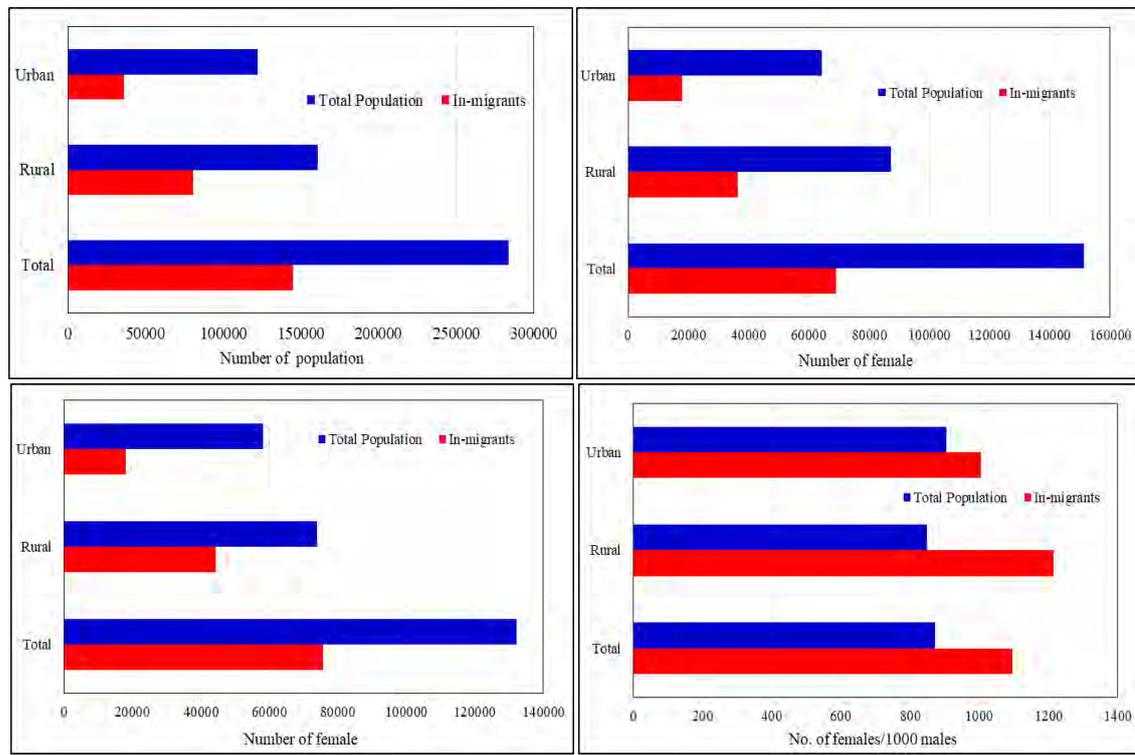


Figure 4.4 Comparison of in-migrants and total population in the East district, 2011 a. Total population b. Male c. Female and d. Sex ratio.

Numbers of male-female and sex ratio of in-migrants comparing with the total population in East district of Sikkim of 2011 showing very interesting features. From Table 4.6, it is found that sex ratio is very high among the in-migrant population than the total population of East district of Sikkim. The figure 4.4c also shows that the female ratio among the in-migrant population of the district during 2001 is very high in comparison with total population of East district of Sikkim. The sex ratio of in-migrants in the district was 1096 females per one thousand males, whereas it was 1214 in rural areas and 1004 in urban areas of the district. But it is quite a difference in the total population of the district. The sex ratio of the total population of the district was 873 females per thousand males, whereas it was 849 for rural areas and 905 for urban areas (Figure 4.4d). It revealed that the sex ratio of total population was very low in comparison to the sex ratio of in-migrants in the district. So, it can be said that the female in-migrants of the district play an important role in the migration process of the district.

4.5.2 Age Structure

The age structure of the population of a region is the best measure for the analysis of the composition of the population. The age structure of a population affects key socio-economic conditions of a place (Poston and Bouvier, 2010). Since migration is an age selective phenomenon, therefore it has some impact not only on the source area but also on the destination area (Newbold, 2013). That is why it becomes more important to study the age composition of in-migrants. The age-wise distribution of in-migrants in the district (Table 4.7) revealed that the highest number of migrants in both cases male and female belongs to the 25 to 29 age group. The lowest number of migrants is found at the age of 80 and above.

Table 4.5 Age-Sex ratio of the in-migrants population of East district of Sikkim of 1991

Age Group	Males	Females	Males %	Females %
0-14	10962	10436	18.18	16.36
15-19	5593	5270	9.28	8.26
20-24	7010	8816	11.63	13.82
25-29	7647	9689	12.68	15.19
30-34	6621	7390	10.98	11.59
35-39	6116	5828	10.14	9.14
40-44	4484	4393	7.44	6.89
45-49	3584	3409	5.94	5.35
50-54	2881	2678	4.78	4.20
55-59	1963	1916	3.26	3.00
60-64	1514	1708	2.51	2.68
65-69	844	951	1.40	1.49
70-74	564	674	0.94	1.06
75-79	219	283	0.36	0.44
80+	285	337	0.47	0.53

Source: Census of India, 1991

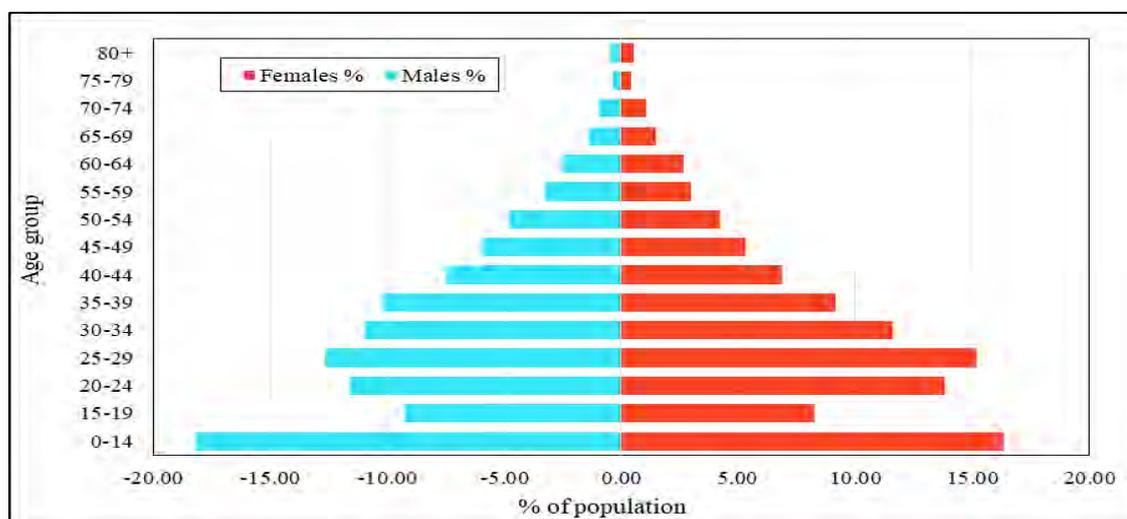


Figure 4.5 Age-Sex ratio of in-migrants population of East district of Sikkim, 1991

The male-female distribution of migrants revealed that above 50 percent of both male and female who came to the East district of Sikkim belong to the adult group (Table 4.7). It becomes clear that the larger numbers of male, as well as female in-migrants, belonged to the 20 to 34 age group (Figure 4.5). In this period of age, male population try to prepare themselves and they seek a job so that they can have a family and be able to raise it. This reason has imposed males of this age group for their extensive mobility and they even do not hesitate to move to other places to seek a better job. Females of India in this age group are nubile and they have the force to marry by their parents (Desai and Andrist, 2010). After marriage the females have to move to their husbands' place which generally is at some other place (Palriwala and Uberoi, 2008). This explains the enhanced mobility of females during these particular age groups.

Table 4.6 Age-Sex ratio of the in-migrants population of East district of Sikkim, 2011

Age Group	Males	Females	Males %	Females %
0-4	2936	2929	4.25	3.87
5-9	3873	3872	5.60	5.11
10-14	5183	4935	7.50	6.52
15-19	6243	6540	9.03	8.64
20-24	7507	9010	10.86	11.90
25-29	7725	9826	11.18	12.98
30-34	6649	8280	9.62	10.93
35-39	6307	7294	9.13	9.63
40-44	5623	5980	8.14	7.90
45-49	4704	4858	6.81	6.42
50-54	4026	3803	5.83	5.02
55-59	2896	2560	4.19	3.38
60-64	1934	1891	2.80	2.50
65-69	1344	1599	1.94	2.11
70-74	1000	1071	1.45	1.41
75-79	602	618	0.87	0.82
80+	554	662	0.80	0.87

Source: Census of India, 2011

The age-sex ratio of in-migrants of East district of Sikkim in 2011 revealed that both male and female ratio is high for the age group of 20-24 years and 25-29 years, which 10.86 percent and 11.18 percent for male migrants and 11.90 percent and 12.98 percent for female respectively (Figure 4.6). The lowest male-female ratio is found for the aged age group of in-migrants in the district (Table 4.8). It revealed that the male in-

migration in the district is mainly due to the economic activities and female in-migration in the district is mainly due to the move with the family and also for economic activities. Aged population among the migrants are very low because they return to their homeland after completion of their economic purposes due to the Citizenship Act. and land laws of Sikkim.

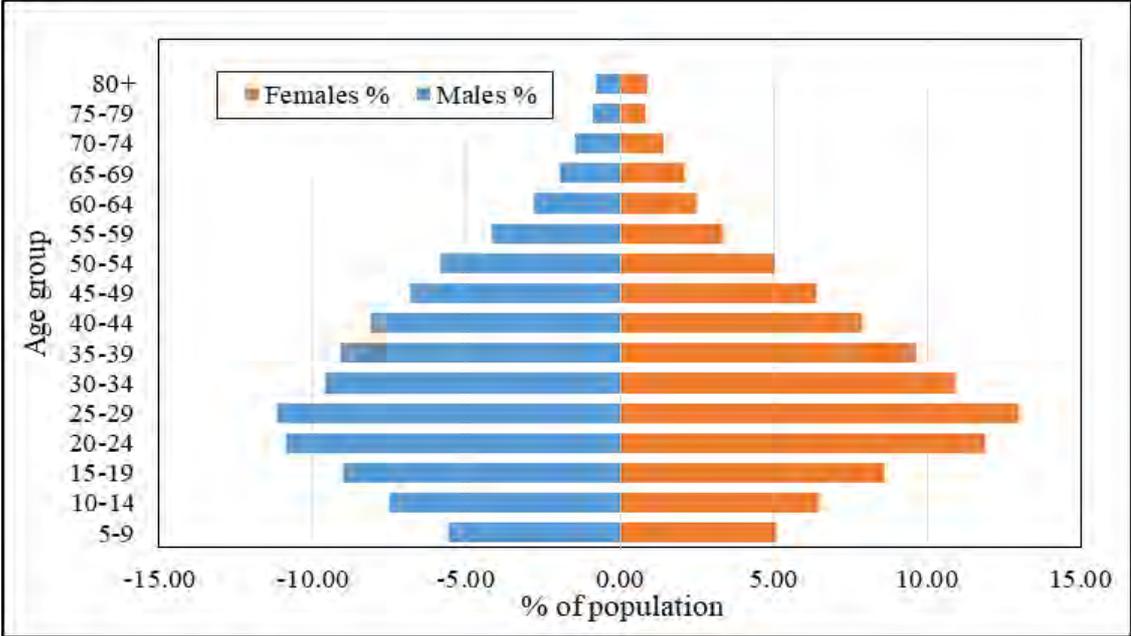


Figure 4.6 Age-sex pyramid of in-migrants people of East district of Sikkim, 2011

4.5.3 Marital composition

Marital composition is the most important issue to study any socio-cultural set up in the present century (Anonymous, 2001). Figure 4.7 showing the marital status of in-migrants people of East district of Sikkim during 2001. This figure shows that a lot of unmarried men and women migrated to the district to search for employment. It is noticed that 11749 male persons and 6904 female persons who migrated in the district remain unmarried up to 2001. A huge number of married people were migrated to this district where the number of females (11500) are more migratory than the male migrants (9602). A little number of widowed, separated and divorced people migrated to the district during 2001.



Figure 4.7 Marital composition of in-migrants of East district of Sikkim, 2001

According to Census 2011, the marital composition of migrants in the East district of Sikkim shows (Figure 4.8) a detailed picture of migration in the district. Unmarried male and female migrants in the district have played a significant role. 14778 numbers of male and 11033 numbers of the female population of the district were migrated into the district during 2011. Whereas married male and female persons among the migrants revealed that married females are more migratory than married males' persons. It indicates that the females are more migrated along with their husband after getting married. Widowed, separated or divorced persons who in-migrated to the district have a little importance. Only 243 numbers of male widows and 648 numbers of female widows were migrated to the district during 2011. Separated or divorced male and female persons have less attraction to migration. Only 149 divorced males and 200 divorced females were migrated to the district in 2011.

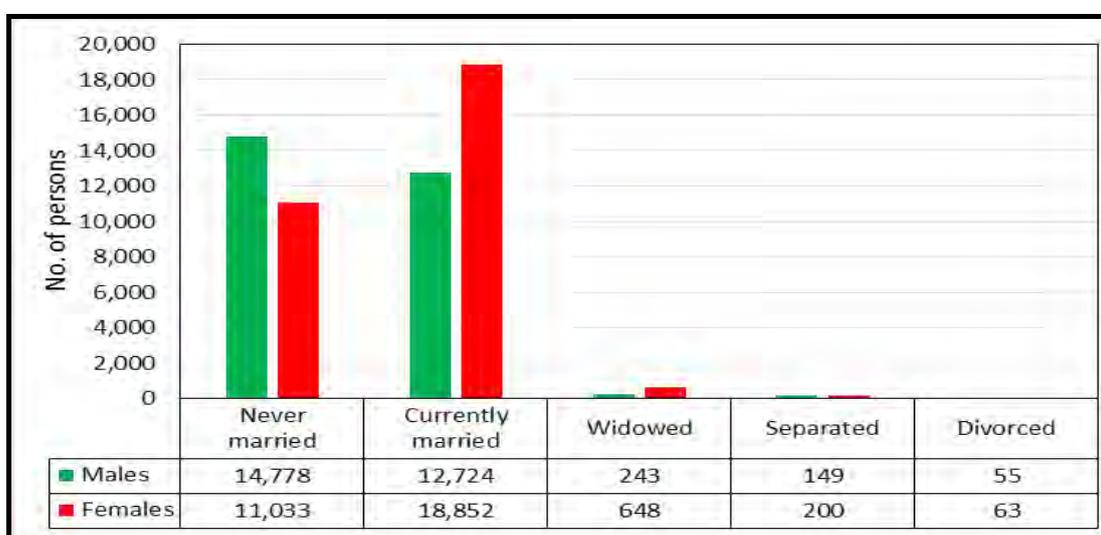


Figure 4.8 Marital composition of in-migrants of East district of Sikkim, 2011

4.5.4 Rural-urban Composition

Rural-urban composition of migrants affects directly or indirectly to the growth and distribution of population, economic prosperity and process of urbanization in any region (Jones, 1990). The study of the rural-urban composition of the population has great importance for human resource development. Table 4.9 shows the rural-urban composition of migrants in the East district of Sikkim according to their duration of residence during the census of 1991. It revealed that females were more migrated (23593) than male migrants (22749) in the rural areas of the district. Whereas, males were more migrated (10765) than female migrants (7425) in the urban areas of the district in 1991. Duration residence of less than 1 year; 1 to 4 years; 5 to 9 years and 10 years and above of migrants in the district in both rural and urban areas of the district (Figure 4.9) shows that all duration of residence about migrants is largely enumerated into the rural areas of the East district of Sikkim during 1991. Duration of residence up to 4 years female showing less number than male migrants in all places of enumeration may be rural or urban (Table 4.9). The highest number of female migrants found in the rural area for the duration of residence 10 years and above in the rural sector of East district of Sikkim. But in comparison with male and female migrants, female migrants share less number in the urban area. All duration of migrants' residence in urban areas has 10765 male and 7425 females. It reveals that the female migrants of the East district of Sikkim are largely gathered in rural areas. On the other side male migrants gathered largely in the urban area of the district.

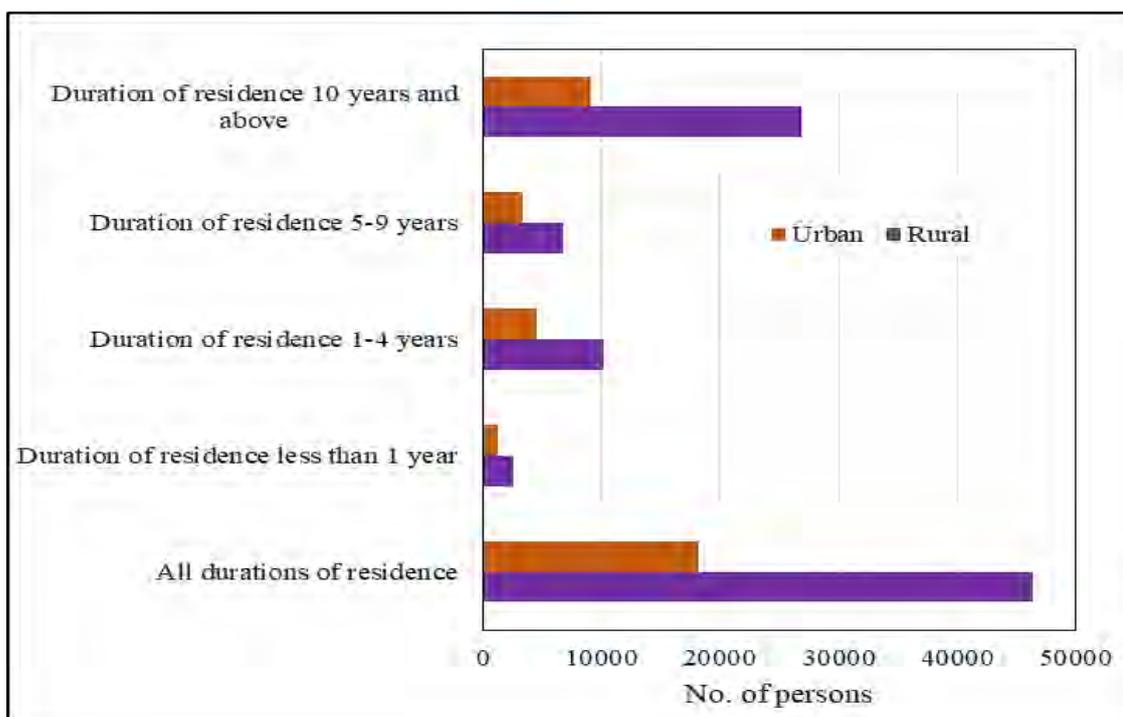


Figure 4.9 Rural-urban composition of in-migrants people of East district of Sikkim, 1991

Table 4.7 Rural-Urban composition of in-migrant people in the East district of Sikkim, 1991

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	46342	22749	23593
All durations of residence	Urban	18190	10765	7425
Duration of residence less than 1 year	Rural	2,514	1404	1110
Duration of residence less than 1 year	Urban	1,294	779	515
Duration of residence 1-4 years	Rural	10,239	5348	4891
Duration of residence 1-4 years	Urban	4,496	2694	1802
Duration of residence 5-9 years	Rural	6,726	3074	3652
Duration of residence 5-9 years	Urban	3,329	1905	1424
Duration of residence 10 years and above	Rural	26,863	12923	13940
Duration of residence 10 years and above	Urban	9,071	5387	3684

Source: Census of India, 1991

Table 4.8 Rural-Urban composition of in-migrant people in the East district of Sikkim, 2011

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	70,399	31,473	38,926
All durations of residence	Urban	74,529	37,684	36,845
Duration of residence less than 1 year	Rural	5,874	3,403	2,471
Duration of residence less than 1 year	Urban	4,391	2,269	2,122
Duration of residence 1-4 years	Rural	12,436	5,545	6,891
Duration of residence 1-4 years	Urban	15,081	7,298	7,783
Duration of residence 5-9 years	Rural	9,800	3,988	5,812
Duration of residence 5-9 years	Urban	11,163	5,446	5,717
Duration of residence 10 years and above	Rural	30,511	11,995	18,516
Duration of residence 10 years and above	Urban	31,098	16,148	14,950

Source: Census of India, 2011

Figure 4.10, showing that the rural-urban composition of in-migrant people of the East district of Sikkim for 2011 was distributed with a variety of rural and urban areas. During 2011 migrants mostly gathered in urban areas compared to rural areas of the district. Male and female migrants' distribution is remarkable during 2011, because female concentration has increased in urban areas. However, females are largely in-migrated into the rural areas of the district. In some duration of residence of migrants like 1 to 4 years and 5 to 9 years numbers of females are high in urban areas.

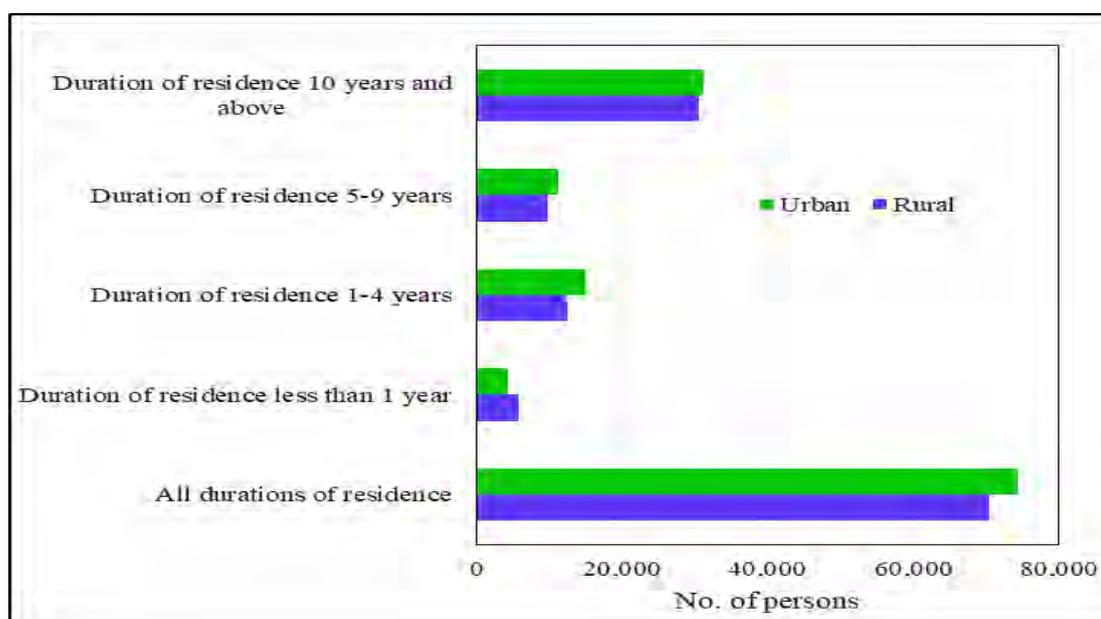


Figure 4.10 Rural-urban composition of in-migrants people of East district of Sikkim, 2011

4.5.5 Occupation Structure

The economic stability of any region or country can better be understood by knowing the occupational structure of the population (Siddiki, 1984). Census of India has classified the occupation structure of the country into main and marginal workers and non-workers (Dubey et al., 2001). Main and marginal workers have further categorized into specific occupational categories, which are cultivators, agricultural labourers, household industrial workers and other workers (Census of India, 1991-2011).

Table 4.9 Distribution of migrant workers in the East district of Sikkim, 1991-2001

Categories of workers	1991		2001	
	Number	Percentage	Number	Percentage
Cultivators	7790	23.49	14160	23.54
Agricultural Labourers	2501	7.54	5900	9.81
Household industrial workers	416	1.25	1193	1.98
Other workers	22459	67.72	38890	64.66
Total Workers	33166	100.00	60143	100.00

Source: Census of India, Migration table, 1991-2001

There are four categories of workers among the migrants in the district according to the census of India during 1991 and 2001 which are cultivators, agricultural labourers, household industrial workers and other workers. According to Census 1991, among the total migrant workers of the district 23.49 percent are working as cultivators, 7.54 percent are working as agricultural labourers and only 1.25 percent are working as household industrial workers; whereas 67.72 percent migrant workers are engaged as other workers in the district. On the other hand, according to census 2001, among the total migrant workers cultivators occupied 23.54 percent, agricultural labourers occupied 9.81 percent and household industrial workers occupied only 1.98 percent; whereas among the migrant workers 64.66 percent were engaged in other different sectors of economic activities (Figure 4.11). It shows that the cultivators, agricultural labourers and household industrial workers among the migrants have little importance in the economy of the district, but working in other sectors contributed massively in the economy of the district. Growing population density and acceleration of urbanization in the district has more importance in non-agricultural economic activities in the district.

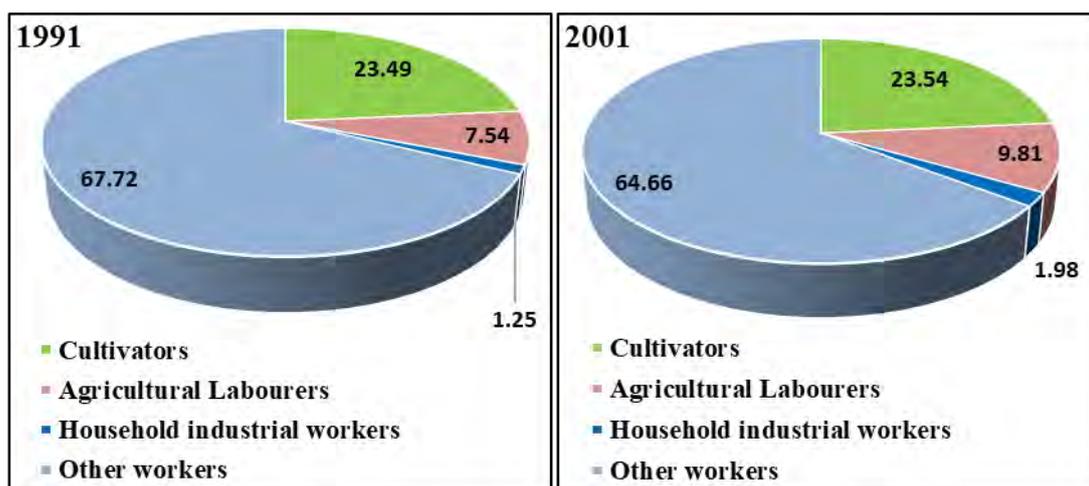


Figure 4.11 Distribution of migrant workers in different economic sectors in the East district of Sikkim, 1991-2001

Table 4.10 Occupational structure of migrants in the East District of Sikkim, 1991-2001

Occupation structure	Sex	1991		2001	
		Number	Percentage	Number	Percentage
Total workers	Total	33166	100	60143	100
	Male	23700	71.46	38475	63.97
	Female	9466	28.54	21668	36.03
Cultivators	Total	7790	100.00	14160	100.00
	Male	3624	46.52	5088	35.93
	Female	4166	53.48	9072	64.07
Agricultural Labourers	Total	2501	100.00	5900	100.00
	Male	1764	70.53	2754	46.68
	Female	737	29.47	3146	53.32
Household industrial workers	Total	416	100.00	1193	100.00
	Male	372	89.42	825	69.15
	Female	44	10.58	368	30.85
Other workers	Total	22459	100.00	38890	100.00
	Male	17940	79.88	29808	76.65
	Female	4519	25.19	9082	23.35

Source: Census of India, 1991-2001

The occupational structure of migrants of East district of Sikkim during the census year 1991 (Table 4.12) shows the different categories of migrant workers in the district. Total migrant workers in the district during the 1991 census was 33166, out of which 23700 were male (71.46%) and 9466 were female (28.54%). Cultivators among the migrants in the district during 1991 was 7790, out of which 3624 were male (46.52%) and 4166 were female (53.48%). Among the migrants of the district, 1764 numbers of

male (70.53%) and 737 numbers of females (29.47%) were engaged as agricultural labourers during 1991. Only 372 numbers of male (89.42%) and 44 numbers of female (10.58%) among the migrant workers in the district were working in household industrial sectors (Figure 4.12). A large number of migrants in the district during 1991 were categorized as other workers, who were working in the service sector. It revealed that the occupational structure of migrants in the district during 1991 was mainly based on the non-agricultural economic activities and female migrants were mainly engaged in the cultivation sector.

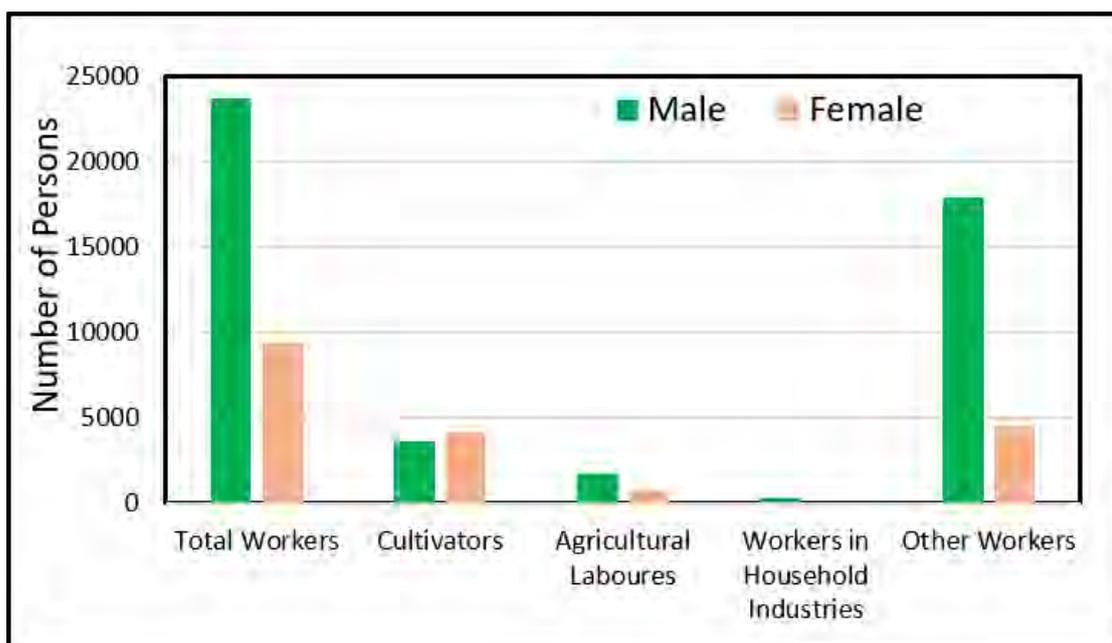


Figure 4.12 Occupation structure of migrants in the East district of Sikkim, 1991

The occupational structure of migrants in the East district of Sikkim during the census 2001 (Table 4.12) revealed that the total migrant workers in the district were 60143, where 38475 were male (63.97%) and 21668 were female (36.03%). Among all four categories of occupational structure female migrants were engaged as cultivators and agricultural labourers more than male in the district. 9072 numbers of female migrant workers (64.07%) in the district were working as cultivators, whereas 5088 numbers of male migrant workers (35.93%) in the district were engaged in this sector of economic activities. 3146 numbers of females (53.32%) and 2754 numbers of male (46.68%) were working as agricultural labourers in the district during the census 2001. 825 numbers of male (69.15%) and only 368 numbers of female (30.85%) migrant workers in the district were engaged in household industries. 38890 numbers of migrant workers in the district were mentioned as other workers during the census 2001, out of which

29808 numbers were male (76.65%) and 9082 numbers were female (25.35%). So, it is found that the female migrant workers were more engaged in cultivation and allied sectors and male migrant workers were more active in other sectors of the economy than cultivation and allied sectors.



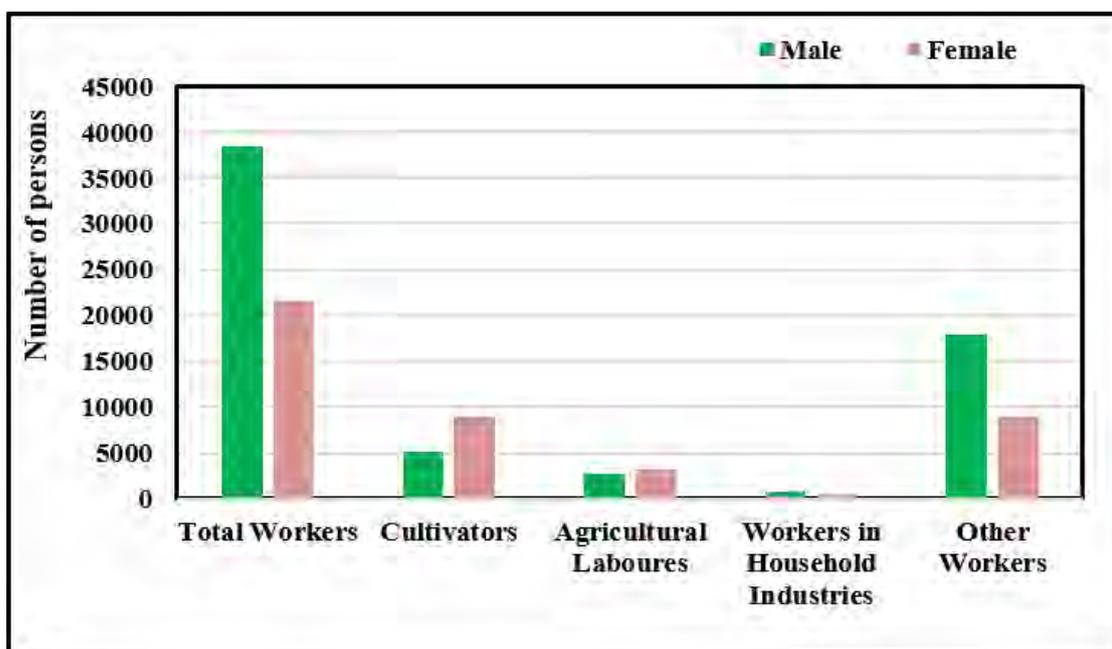


Figure 4.13 Occupation structure of migrants in the East district of Sikkim, 2001

4.6 Structure and composition of in-migrants in the South district of Sikkim

4.6.1 Sex Composition

The sex ratio of South district of Sikkim is shown in Table 4.13, it is found that high sex ratio (1208 females per 1000 males) among the in-migrant population in South district of Sikkim during 1991. But the sex ratio of urban areas both in-migrants and total population of the district has a very poor sex ratio of 679 and 693 females per 1000 males respectively during 1991, which was much lower than the national level. In the comparison of sex ratio with total population of south Sikkim females are more in number than male migrants.

Table 4.11 Male-female and sex ratio of in-migrants and total population in the South district of Sikkim, 1991

Place of Residence	In-migrants				Total Population			
	Total	Male	Female	Sex ratio	Total	Male	Female	Sex ratio
Total	30077	13620	16457	1208	98604	52105	46499	892
Rural	28337	12559	15778	1256	96035	50588	45447	498
Urban	1740	1061	679	640	2569	1517	1052	693

Source: Census of India, 1991

The sex composition of the in-migrants is much higher than that of the general population of the district (Figure 4.14). There is significant rural-urban differential in the sex ratio, because of female migration due to marriage from adjoining states and migration of male in-migrants from villages of Sikkim to town, in search of better jobs and leaving their families behind in rural areas. The high cost of living, scarce and expensive housing facilities and inadequacy of common amenities in Sikkim put some restrictions on family migration.

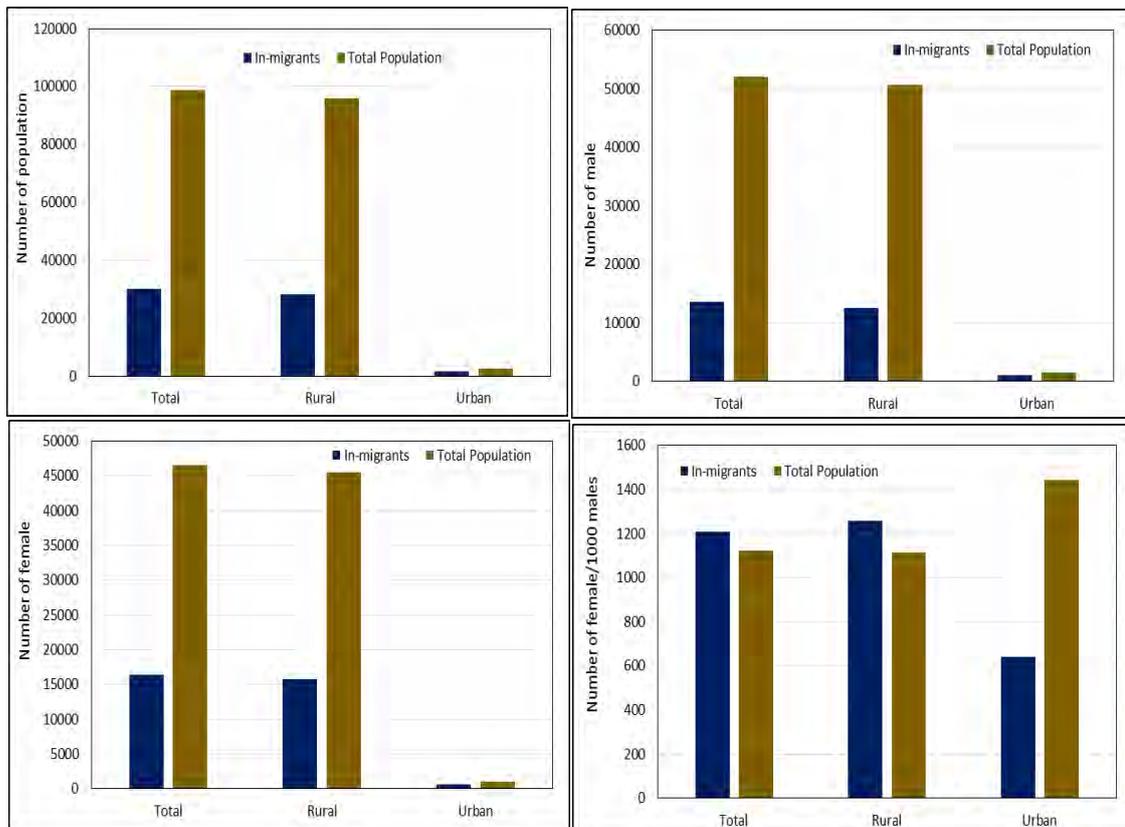


Figure: 4.14 Comparison of in-migrants and total population in the South district, 1991 a. Total population b. Male c. Female and d. Sex ratio

In Census 2011, sex ratio is much higher among the migrants in comparing to the total population of South district of Sikkim. During the year 2011, the sex ratio among the migrants was 1472 females per one thousand males; it was 1627 for rural areas and 1021 for urban areas of the district. But the sex ratio of the total population of the district was 915 females per one thousand males with 908 in rural areas and 959 in urban areas of the district (Figure 4.15). The concentration of in-migrants in rural areas of the South district of Sikkim is found largely in Sumbuk, Sikkip, Temi-Tarku,

Yangyan, Likship. In-migrants of the South district of Sikkim are found in the urban centres such as Ravong, Namchi, Jorethang, Namthang.

Table 4.12 Male-female and sex ratio of in-migrants and total population in the South district of Sikkim, 2011

Place of Residence	In-migrants				Total Population			
Place of Residence	Total	Male	Female	Sex ratio	Total	Male	Female	Sex ratio
Total	50948	20611	30337	1472	146850	76670	70180	915
Rural	40350	15357	24993	1627	125651	65848	59803	908
Urban	9448	4674	4774	1021	21199	10822	10377	959

Source: Census of India, 2011

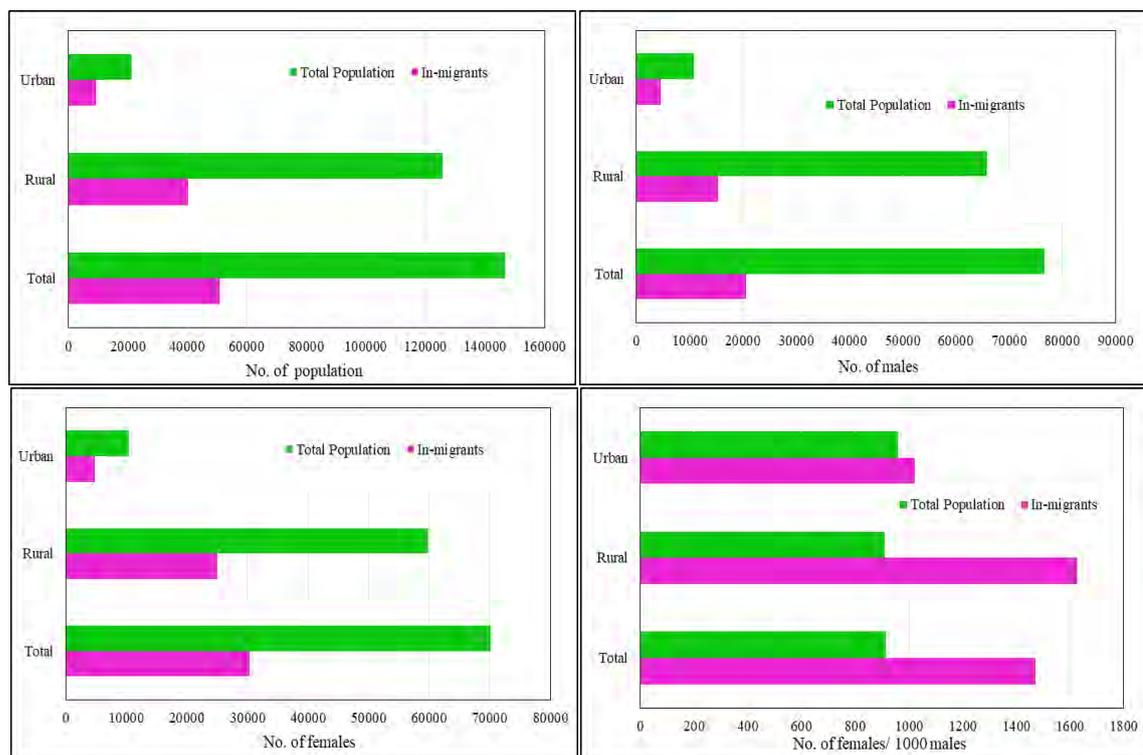


Figure 4.15 Comparison of in-migrants and total population in the South district, 2011 a. Total population b. Male c. Female and d. Sex ratio

4.6.2 Age Structure

The age-sex pyramid of in-migrants people of south district of Sikkim for 1991 showing that 14 to 34 years age groups are dominating (Table 4.15). The main causes behind that situation because of the unemployment situation in source states. That is why a large number of young migrants are gathered with their child and family into the south district of Sikkim. Figure 4.16 shows the age-sex pyramid of in-migrants people

of south district of Sikkim, 2011, which revealed that concentration of migrants is working-age group in the district denotes that the economic activities are the main reason of migration into the district.

Table 4.13 Age-Sex ratio of in-migrants population of South district of Sikkim 1991

Age Group	Males	Females	Males %	Females %
0-14	2519	2392	18.61	14.60
15-19	1195	1264	8.83	7.72
20-24	1454	2177	10.74	13.29
25-29	1635	2451	12.08	14.96
30-34	1495	1937	11.05	11.82
35-39	1375	1492	10.16	9.11
40-44	996	1190	7.36	7.26
45-49	712	882	5.26	5.38
50-54	668	763	4.94	4.66
55-59	492	605	3.64	3.69
60-64	412	514	3.04	3.14
65-69	242	296	1.79	1.81
70-74	182	234	1.34	1.43
75-79	71	84	0.52	0.51
80+	86	102	0.64	0.62

Source: Census of India, 1991

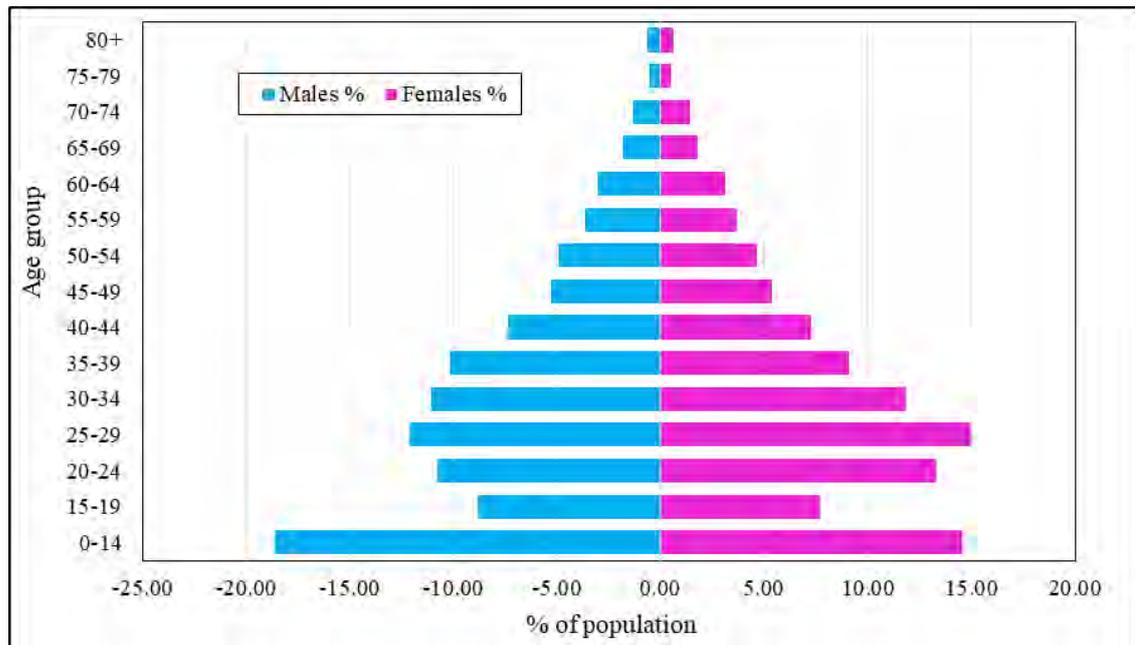


Figure 4.16 Age-Sex ratio of in-migrants population of South district of Sikkim 1991

The age-sex pyramid of in-migrants people of south district of Sikkim for 2011 showing that 15 to 40 years groups are dominating (Table 4.16). The main causes behind that situation because of the unemployment situation surrounding states. That is why a large number of young migrants are gathered in the South district of Sikkim. It is also expressed in Figure 4.17 of the age-sex pyramid of in-migrants people of south district of Sikkim, 2011.

Table 4.14 Age-Sex ratio of in-migrants population of South district of Sikkim, 2011

Age Group	Males	Females	Males %	Females %
0-4	639	612	3.11	2.02
5-9	1015	997	4.94	3.30
10-14	1437	1311	6.99	4.33
15-19	1546	2012	7.52	6.65
20-24	2236	3468	10.88	11.47
25-29	2148	4103	10.45	13.57
30-34	2131	3641	10.37	12.04
35-39	1828	3352	8.90	11.08
40-44	1843	2615	8.97	8.65
45-49	1587	2207	7.72	7.30
50-54	1343	1792	6.54	5.92
55-59	975	1200	4.74	3.97
60-64	677	1004	3.29	3.32
65-69	441	765	2.15	2.53
70-74	323	521	1.57	1.72
75-79	186	321	0.91	1.06
80+	195	325	0.95	1.07

Source: Census of India, 2011

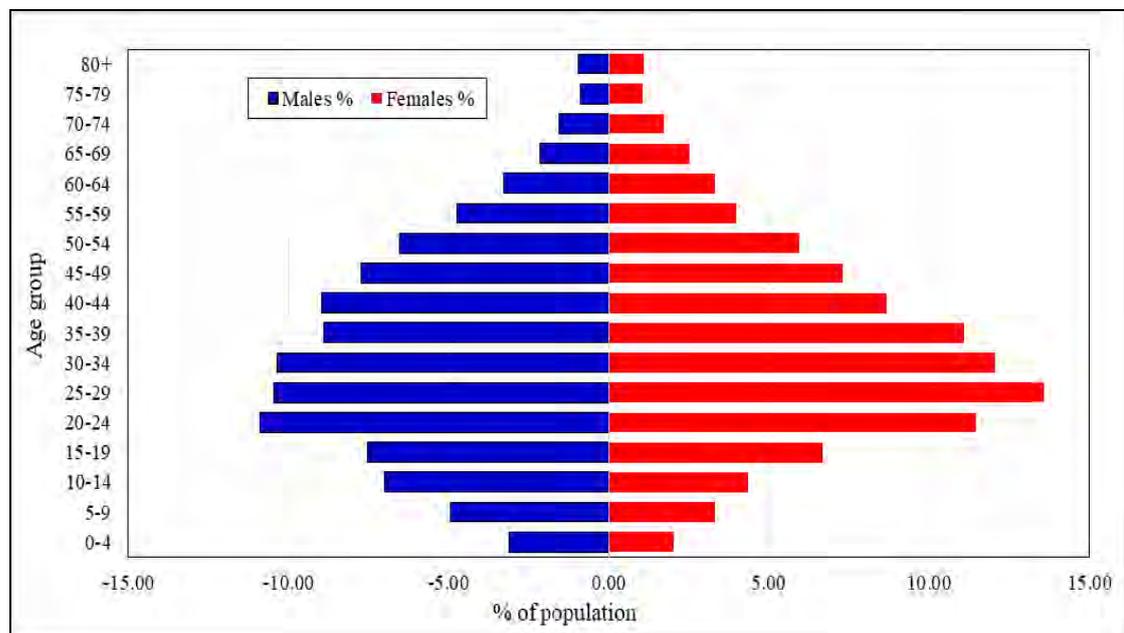


Figure 4.17 Age-sex pyramid of in-migrants people of South district of Sikkim, 2011

4.6.3 Marital composition

Marital composition of migrants in the South district of Sikkim shows (Figure 4.18) that married females are more migratory than males in the district. A total of 4048 numbers of male were migrated into the district during 2001, where 7053 numbers of females were migrated into the district during 2001. But this scenario is not the same for the unmarried migrants of the district. Among the unmarried migrants of the district during 2001, 4659 were males and 3364 were females. A total of 87 of male widows and 238 of female widows were migrated to the district in 2001. About 92 numbers of male and 101 numbers of female were migrated into the district who were separated or divorced with their spouse. It revealed that the rate of female migration to the district is higher due to the after-marriage system of our society.

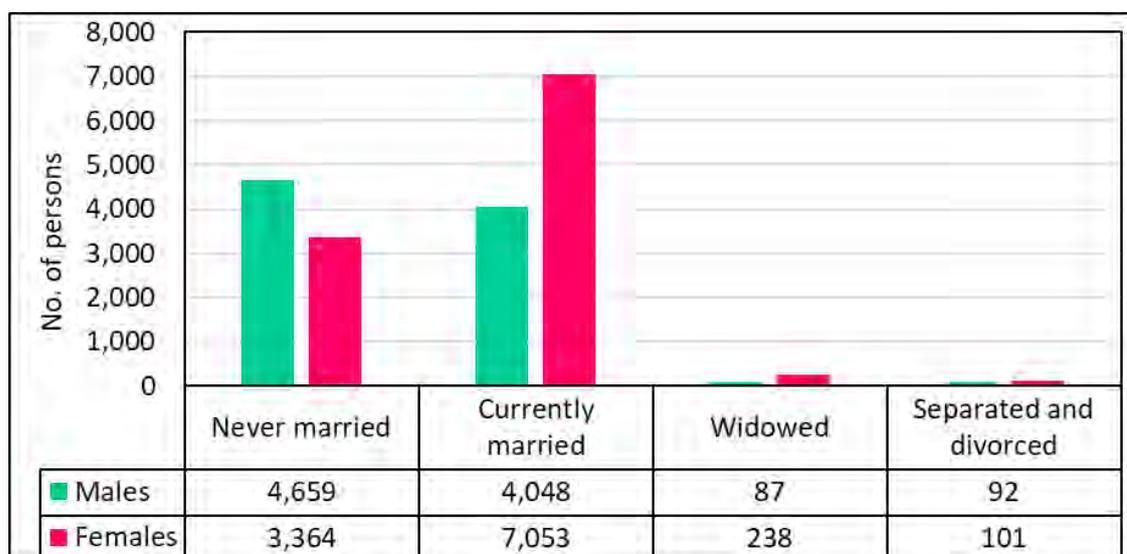


Figure 4.18 Marital composition of in-migrants of South district of Sikkim, 2001

Marital composition is one of the important aspects to study the socio-cultural concept of a particular region. Figure 4.19 showing the marital composition of in-migrants people of the South district of Sikkim. This figure shows that a lot of unmarried men and women migrated into the district seeking job opportunities. 4790 number of male persons and 3101 numbers of female persons migrated to the South district of Sikkim as unmarried and remained until 2011. Huge numbers of people were migrated into the district where the number of females were 8637 and males were 4716. It indicates that females migrated into the district more than male migrants of the district during 2011. A small number of widowed, separated, divorced people migrated in the South district of Sikkim.

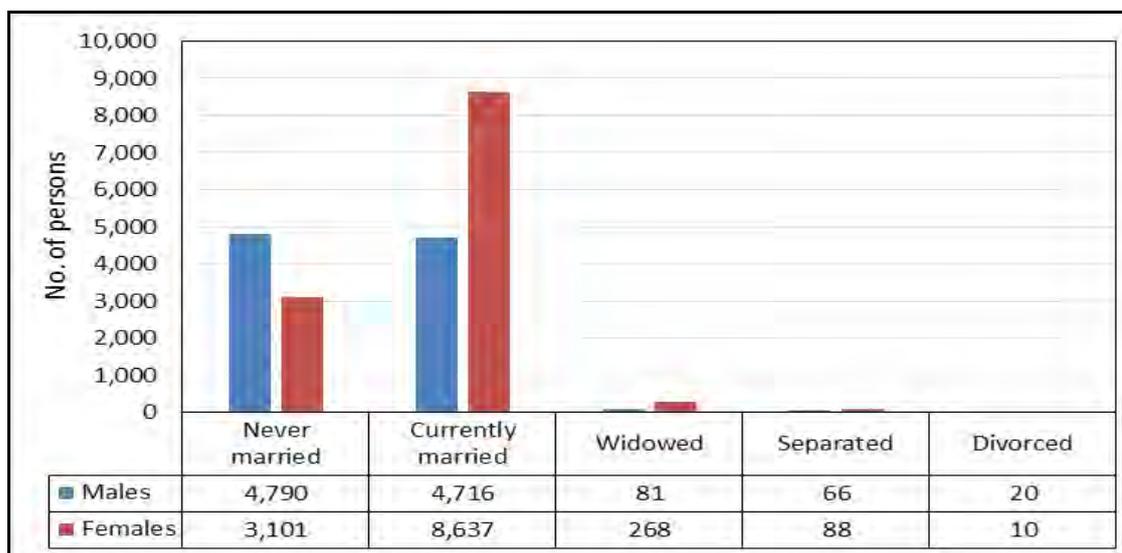


Figure 4.19 Marital composition of in-migrants of South district of Sikkim, 2011

4.6.4 Rural-urban Composition

Generally, labour migrants have been selected to migrate in urban areas in India. But their concentration in the South District of Sikkim has shown the opposite scenario about their working location. There is a large number of migrants working in the rural areas of the South district. Figure 4.20 showing that rural migrants are dominating their distribution in rural or urban areas. Table 4.17 also reveals that migrants choose to live in rural areas of the district. There are rural migrants of the district as 28337 and 1740 persons in urban areas as all residents. Even 10 years and above residence showing that in rural areas it was 16071 persons and 673 persons in urban areas during 1991. In 1991 female migrants chose to reside in rural areas in large numbers. The number of female migrants is high compared to male migrants in 1991.

Table 4.15 Rural-Urban composition of in-migrant people in the South district of Sikkim, 1991

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	28337	12559	15778
All durations of residence	Urban	1740	1061	679
Duration of residence less than 1 year	Rural	1,570	942	628
Duration of residence less than 1 year	Urban	206	137	69
Duration of residence 1-4 years	Rural	6,250	3051	3199
Duration of residence 1-4 years	Urban	500	289	211
Duration of residence 5-9 years	Rural	4,446	1879	2567
Duration of residence 5-9 years	Urban	361	211	150
Duration of residence 10 years and above	Rural	16,071	6687	9384
Duration of residence 10 years and above	Urban	673	424	249

Source: Census of India, 1991

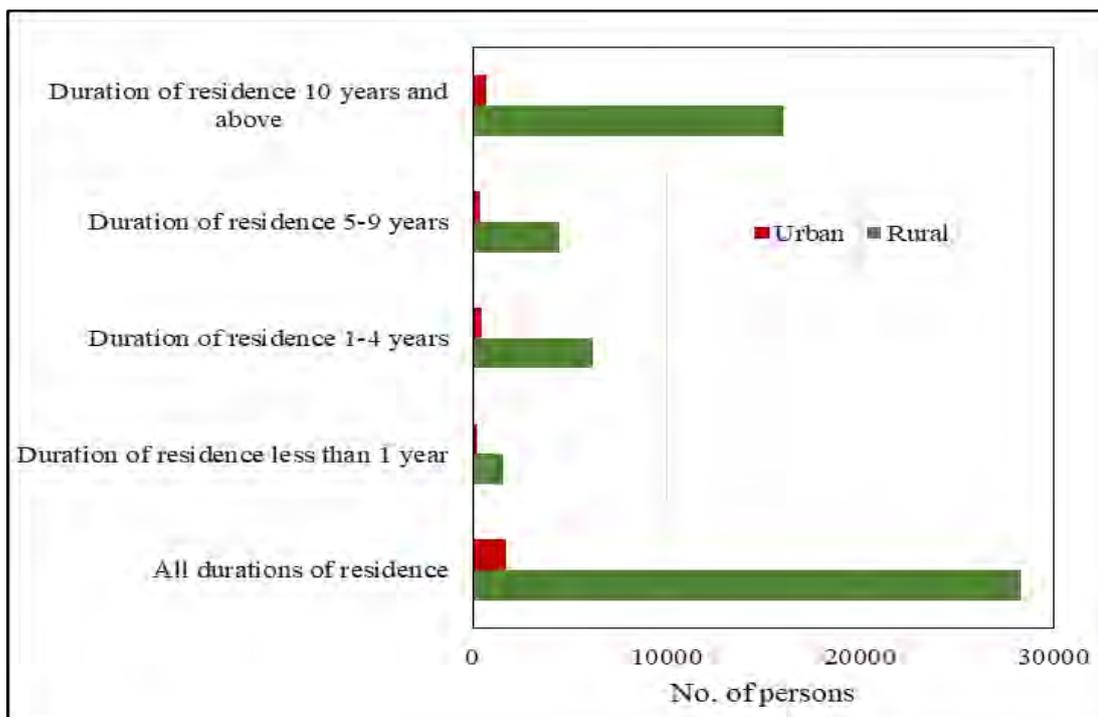


Figure 4.20 Rural-urban composition of in-migrants people of South district of Sikkim, 1991

Rural-urban composition in 2011 of in-migrants in the South District of Sikkim shows the same trends as 1991. But in comparison 1991 to 2011 there has been some slight increase of in-migrant in urban areas. Though urban areas show a low rate of in-migration compared to the rural area, it is revealed by Figure 4.21 that it is higher than 1991. Some changes also found by Table 4.18 that in urban areas male and female in-migrants are more or less equal. But in rural areas there is a lot of variation as male-female category of in-migrants. From Table 4.18, it is found that all duration of residence in rural areas male were 14800 and female were 24223. That is why it can be said that in rural areas of the district female in-migrants are gathering in a large number. Duration above 10 years residence in-migrant in urban areas male (2780) and female (2745) are very close. On the other side in-migrants in rural areas male and female have huge differences, where male is 5797 persons and female are 13070 persons, which is almost 2.5 times than male in-migrants.

Table 4.16 Rural-Urban composition of in-migrant people in the South district of Sikkim, 2011

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	39,023	14,800	24,223
All durations of residence	Urban	11,925	5,811	6,114
Duration of residence less than 1 year	Rural	3,316	2,101	1,215
Duration of residence less than 1 year	Urban	794	479	315
Duration of residence 1-4 years	Rural	7,463	3,132	4,331
Duration of residence 1-4 years	Urban	2,411	1,087	1,324
Duration of residence 5-9 years	Rural	5,633	1,895	3,738
Duration of residence 5-9 years	Urban	2,160	979	1,181
Duration of residence 10 years and above	Rural	18,867	5,797	13,070
Duration of residence 10 years and above	Urban	5,525	2,780	2,745

Source: Census of India, 2011

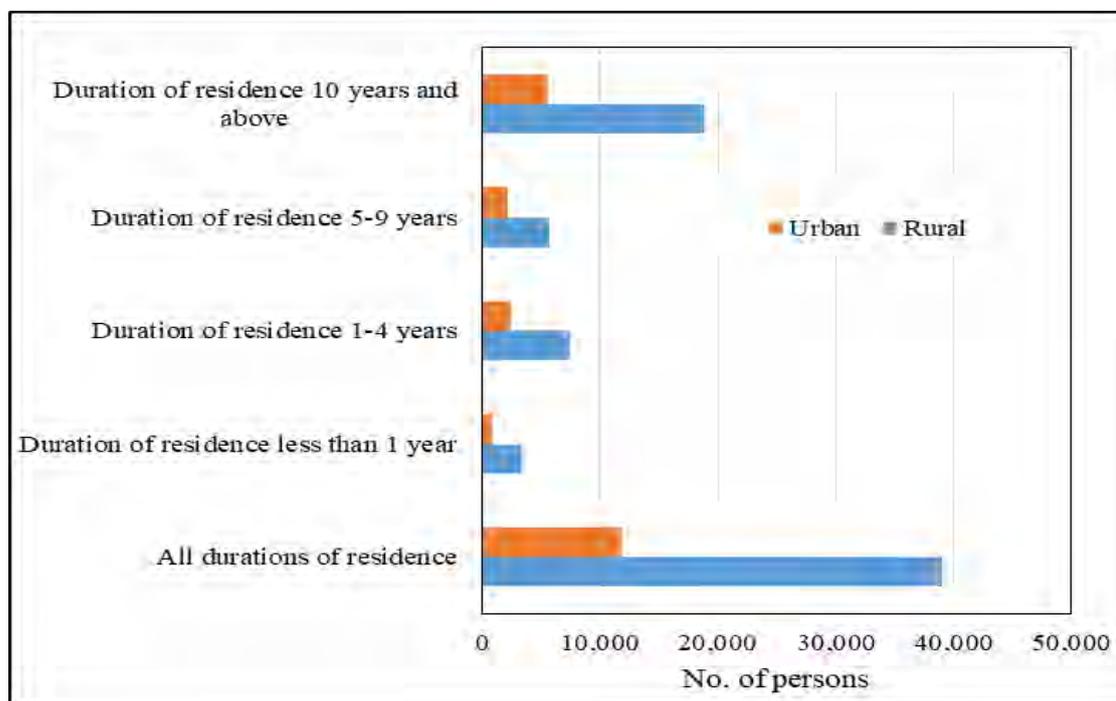


Figure 4.21 Rural-urban composition of in-migrants people of South district of Sikkim, 2011

4.6.5 Occupational Structure

Table 4.17 Distribution of migrant workers of South district of Sikkim, 1991-2001

Categories of workers	1991		2001	
	Number	Percentage	Number	Percentage
Cultivators	9219	54.90	14493	51.58
Agricultural Labourers	1056	6.29	1759	6.26
Household industrial workers	193	1.15	390	1.39
Other workers	6325	37.66	11458	40.78
Total workers	16793	100.00	28100	100.00

Source: Census of India, Migration table, 1991-2001

There are four categories of workers among the migrants in the South district of Sikkim according to the census of India during 1991 and 2001 which are cultivators, agricultural labourers, household industrial workers and other workers. Cultivators are the principal occupation among the migrants in the district during both the census. In the census 1991, 54.90 percent migrant workers were mentioned as cultivators, whereas in the census 2001, it was slightly decreased at 51.58 percent of total migrant workers in the district. Other workers of the district occupied second position in terms of occupational structure, which was 37.66 percent in 1991 among the migrant workers and it was slightly increased by 40.78 percent in 2001 (Table 4.19). But among the migrant workers of the district agricultural labourers and household industrial workers have little significance in the economy of the district. Migrant workers of the district 6.29 percent and 6.26 percent were working as agricultural labourers during the census 1991 and 2001 respectively. Engagement of migrant workers in household industries of the district is very unexpected. Only 1.15 percent and 1.39 percent among the migrant workers of the district were engaged in this sector during 1991 and 2001 respectively (Figure 4.22). So, it is found that the cultivation sector of the district is more remarkable than other sectors of economy of the district.

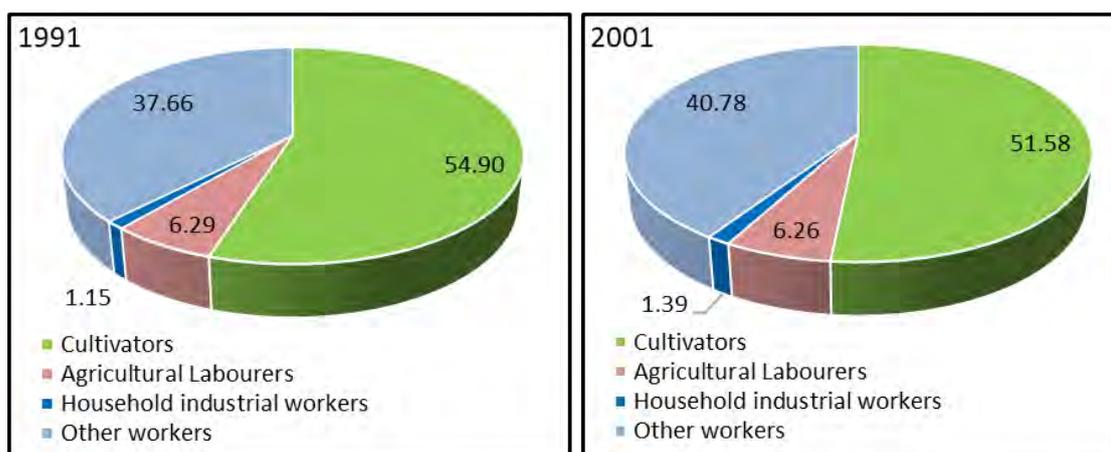


Figure 4.22 Distribution of migrant workers in different economic sectors in the South district of Sikkim, 1991 & 2001

Table 4.18 Occupational structure of migrants in the South District of Sikkim, 1991-2001

Occupation structure	Sex	1991		2001	
		Number	Percentage	Number	Percentage
Total workers	Total	16793	100	28100	100
	Male	9821	58.48	13786	49.06
	Female	6972	41.52	14314	50.94
Cultivators	Total	9219	100.00	14493	100.00
	Male	3875	42.03	4200	28.98
	Female	5344	57.97	10293	71.02
Agricultural Labourers	Total	1056	100.00	1759	100.00
	Male	734	69.51	800	45.48
	Female	322	30.49	959	54.52
Household industrial workers	Total	193	100.00	390	100.00
	Male	179	92.75	245	62.82
	Female	14	7.25	145	37.18
Other workers	Total	6325	100.00	11458	100.00
	Male	5033	79.57	8541	74.54
	Female	1292	25.67	2917	25.46

Source: Census of India, 1991-2011

The occupational structure of the South district of Sikkim during the census 1991 and 2001 illustrates the importance of migrant workers in the district. Total migrant workers in the district were 16793 in 1991 and increased nearly double at 28100 in 2001. Table 4.20 shows that among the migrant workers of the district 9219 were cultivators in 1991, out of which 5344 were female (57.97%) and 3875 were male (42.03%) and it increased during 2001. A total number of cultivators among the

migrant workers of the district were 14493 in 2001, out of which 4200 were male (28.98%) and 10293 were female (71.02%). The Number of female migrant workers of the district which engaged in cultivation has jumped in number during 2001 in comparison to 1991 and male migrants' cultivators have slightly increased in number but, it decreased in ratio in comparison to female migrant cultivators of the district. A total number of agricultural labourers among the migrant workers in the district was 1056 in 1991, out of which 734 were male (69.51%) and 322 were female (30.49%), on the other hand, 1759 numbers of migrants in the district were stated as agricultural labourers during 2001, out of which 800 were male (45.48%) and 959 were female (54.52%). So, female migrant workers are more significant in this sector than the male migrant workers in the district. Total household industrial workers in the district were 193 in 1991, out of which 179 were male (92.75%) and only 4 were female (7.25%), whereas it has increased to 390, out of which 245 were male (62.82%) and 145 were female (37.18%) in the district during 2001. In the district, 6325 numbers of migrants were stated as other workers in 1991, out of which 5033 were male (79.57%) and 1292 were female (25.67%). In the census 2001, total 11458 numbers of migrants were engaged in other sectors of economy in the district. Among the 11458 other workers in the district 8541 were male (75.54%) and 2917 were female (25.46%). So, it started after the analysis that there is a massive increased in-migrant worker in the district from 1991 to 2001. The occupational structure of the district revealed that the female workers of the district were much noticeable in the economic activities of the district (Figure 4.23 & 4.24).

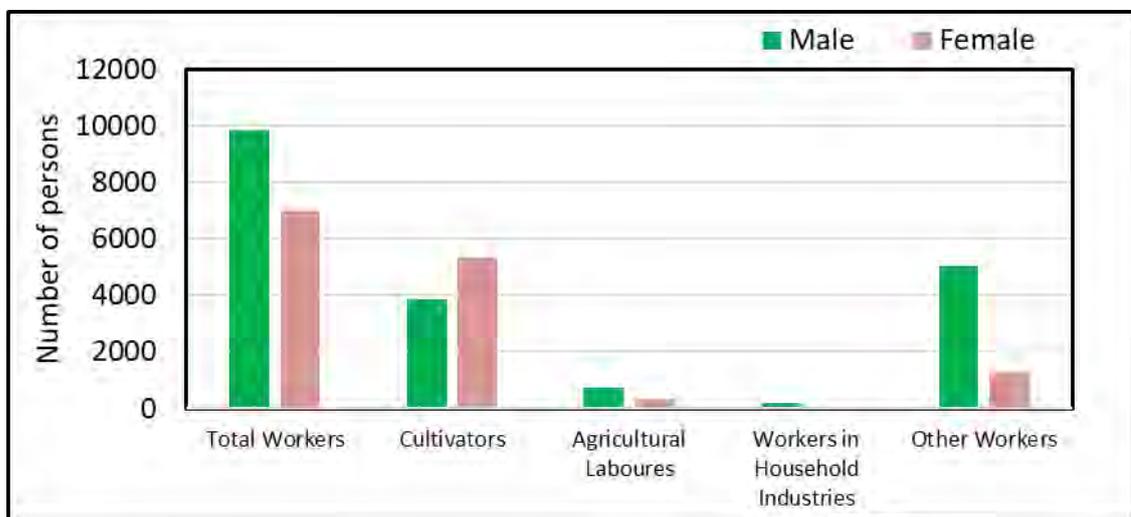


Figure 4.23 Occupation structure of migrants in the South district of Sikkim, 1991

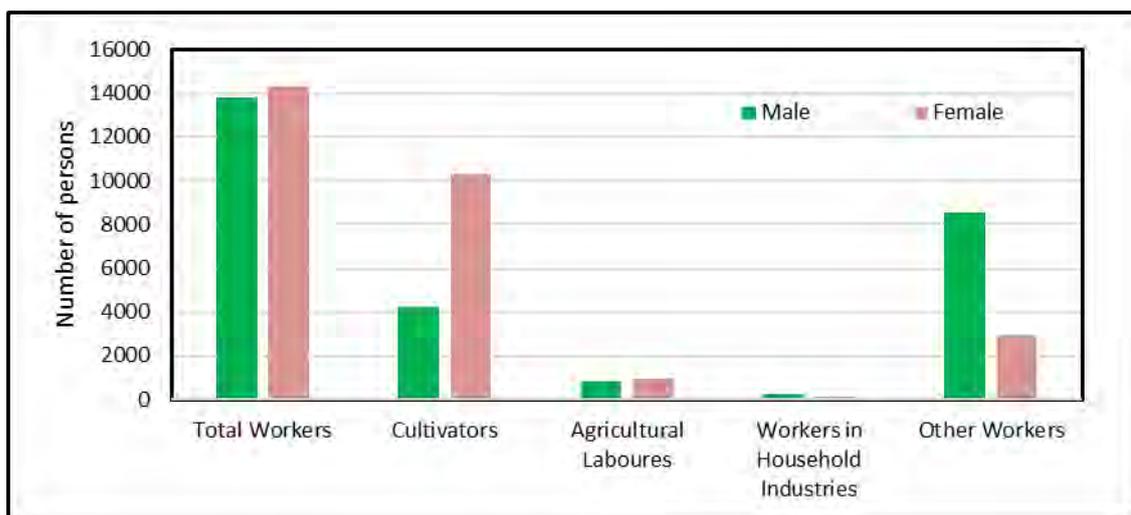


Figure 4.24 Occupation structure of migrants in the South district of Sikkim, 2001

4.7 Comparison of Structure and composition of in-migrants in East and South districts of Sikkim

Structure and composition of in-migrants along with the rate of migration in the East and South districts of Sikkim has been discussed in this chapter. In this section of the chapter tries to make a comparison between East and South districts of Sikkim about their rate of migration and structure and composition of in-migrants in the district. From the above study, it is revealed that in-migration rate, out-migration rate, net migration rate and gross migration in the East district have gradually increased from 1991 to 2011. But, in the South district of the state in-migration rate, net migration rate and gross migration rate had increased from 1991 to 2001, though it declined from 2001 to 2011. Only the out-migration rate of the district has gradually increased during the census years 1991 to 2011. It indicates that the in-migration process remains under consideration with declining rates, but the South district of the state has already been in a distressing condition regarding in-migration process. It also indicates clearly that migration rate of the East district has declined from 27.76 during the inter-censal period of 1991-2001 to 22.13 during the inter-censal period of 2001 to 2011, whereas South district has a declining radical rate of in-migration process from 16.63 during the inter-censal period of 1991-2001 to only 5.14 during the inter-censal period of 2001 to 2011.

Structure and composition of migrants between East and South districts of Sikkim have varied in all of the stands. The sex ratio among the migrants in the East

district during 1991 was 1037 in rural areas and 690 in urban areas and during 2011 sex ratio was 1214 in rural areas and 1004 in urban areas. But, South district of Sikkim has much higher sex ratio among the migrants in rural areas than the East district of the state. The sex ratio of South district during 1991 was 1256 in rural areas and during 2011 it was 1627 in rural areas. In the urban areas of both the districts, sex ratio remains almost close together. East district has sex ratio of 690 and South district has sex ratio of 640 during 1991 and on the other hand, it was 1004 in East district and 1021 in South district during 2011. So, it can conclude that sex ratio among the migrants in both of the districts are higher than state as well as national average. The age structure of the East and South districts of Sikkim have remained the same. Each of the districts has maximum numbers of migrants who belong to the working-age group between 20 years and 34 years for both male and female migrants. It revealed that economic activities are the main reason for migration in both districts. Marital composition of the districts in the study area is almost identical. Both the districts have maximum married in-migrants, in which numbers of females are more than male migrants. Whereas, among the unmarried in-migrants male migrants are maximum than female migrants. Widowed and separated or divorced migrants of both male and female migrants have a little significance in the migration process in the study area with a minimum number migrant. Rural-urban composition of in-migrants in the districts has similar marital composition. In both of the districts migration rate is much higher in rural areas than the urban areas of the districts except in the East district during 2011 for male migrants who were 31473 in rural areas and 37684 in urban areas. During the census 1991 and 2011 for the East and South districts of the state the number of rural in-migrants is more than the number of urban in-migrants for both the male and female migrants. It indicates that the migration in the study area is operated by the different socio-economic activities in rural areas. East and South districts of Sikkim have some similarities and differences regarding the occupational structure of migrants in the study area. The East district has the maximum proportion of other workers among the migrants in the district followed by cultivators; on the other hand, the South district has the maximum proportion of cultivators among the migrant workers in the district followed by others workers in the occupational structure of the study area during both the census of 1991 and 2001. Although, both the districts in the study area have a minimum proportion of migrant workers who are working as agricultural labourers and household industrial workers. Among the migrant workers in both the districts of the

study area, females are dominating over male in the occupation of cultivators and agricultural labourers during both the census year 1991 and 2001, whereas males are dominating over females as other workers and household industrial workers in the study area during both the year 1991 and 2001. The occupational structure of the study area indicates that the maximum number of female workers are engaged in the agricultural sector and male workers are engaged in several industrial, minerals and allied activities in the study area.

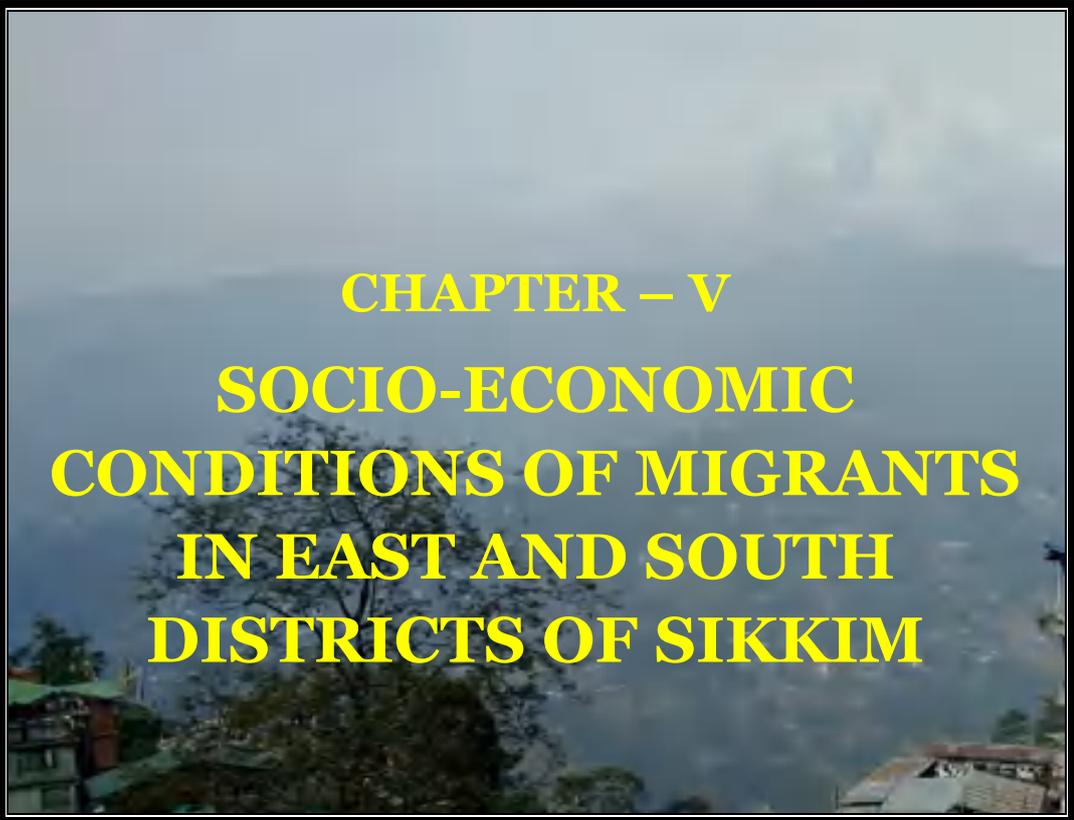
4.8 Summary

In this chapter, the rate of migration in the East and South district of Sikkim has been discussed. Rate of migration in the study area is estimated with the help of rate of migration method along with in-migration rate method, out-migration rate method, net migration rate method and gross migration rate method. Different measurements of rate migration stated that the study area has a declining migration rate during the last two decades. Structure and composition of migrants in both the districts have also been analysed. Age structure, sex composition, marital composition, rural-urban composition and occupational structure of migrants in the study area has been discussed to find out the structure and composition of migrants in the study area. It revealed that sex ratio of the study area is much higher that means female migrants in the study area are dominating in nature. Age structure revealed that the population belonging to the working age group are more in-migrated into the study area than other age groups. Married persons are more migrated in the study area with a female dominating characteristic. Migration of the study area dominated by the in-migrated in the rural areas for both male and female migrants and both the East and South districts. The occupational structure of the study area stated that females are leading workers in agriculture and allied activities and males are principal workers among the migrants in the study area in different other economic activities such as industries, mines, tourism and other sectors of economy in the study area.

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CHAPTER – V
SOCIO-ECONOMIC
CONDITIONS OF MIGRANTS
IN EAST AND SOUTH
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CHAPTER – V

SOCIO-ECONOMIC CONDITIONS OF MIGRANTS IN EAST AND SOUTH DISTRICTS OF SIKKIM

5.1 Introduction

The economic and social factors of migration are a difficult one, in particular at a time of debate approximately the future route of migration policies in Sikkim. Demographic adjustments are taking vicinity which has a critical impact on labour markets (Bohning, 1984). All of these changes influence migration flows and the rights of residents and non-citizens and rules and rights about the integration of migrant workers (Sinha, 2003). Workers are one of the main pillars of every state. The number of unorganized workers (UW) in Sikkim increased many-fold after 1975 (Kirana, 2003). The primary traits of migrant workers in any vicinity are low productiveness, minimum wages to people, terrible working situations, excessive seasonality of employment, absence of social security measures, negation of social preferred, negative human capital base (in phrases of training, talent and schooling) as well as lower mobilization fame of the personnel as compared to the formal sector (Gupta, 2007). The migrant workers in Sikkim have unique characteristics like instability, seasonality with short duration. There is no provision for workers in terms of social security that means providing benefits to households and individuals through public or collective arrangements to protect against low or declining standard of living arising from a number of basic risks and needs. There is no such guaranteed minimum wage for the workers (Bhutia and Srivastava, 2014).

The entire process of recruitment, transit, working and living conditions in the various unorganized sectors in Sikkim is a testimony and indication of the existence of a severe form of human bondage (Thapa, 2017). At the workplace, they are exploited, deprived and do not get the status. In this backdrop, an attempt has been made in this chapter to determine the socio-economic conditions of the migrant workers engaged in East and South districts of Sikkim.

The migrant workers are too weak to revolt due to their poverty and stricken condition, illiteracy and ignorance while on the other hand, their employers are too strong and powerful to evade their obligation to exploit them. Of course, various legislative provisions exist to channelize the employment procedures, regularizing

payments and working hours, preventing unfair deduction of wages, ensuring leaves, providing social security and so on. However, the perceived reality is completely different from our expectations. Several sources reveal huge numbers of instances of denying the labour laws, especially for female workers.

Before going into the depth of the problems, a brief account of the socio-economic life of the migrants has been portrayed as it provides a relevant background of the present investigation. An attempt has been made to provide a clear picture of the social life of the migrant workers in terms of their age distribution, marital status, religious background, educational status, family size and household conditions. The characteristics of economic life, which also have been taken into consideration include land holding, occupational pattern, earning member of the family, annual income and indebtedness.

To articulate the whole reality, the chapter has been divided into two sections: the first one has been dealt with socio-economic facets of workers, the second one aims to formulate the Socio-economic Status Index of migrant workers.

5.2. Database and Methodology

In this part, a thorough discussion about the data set collected and used for the study and the methods and techniques applied for the carrying out the study is given in detail.

5.2.1 Database

The socio-economic study of migrants in the East and South districts of Sikkim is purely based on primary data. Primary data were collected from the in-migrants of East and South districts of Sikkim. Data collected from 340 migrants' respondents of East and South districts of Sikkim. A structured questionnaire has been used to collect the social, demographic and economic aspects of migrants of the districts.

5.2.2 Methodology

In this section of the study, socioeconomic index (SEI) is framed up to identify the socio-economic status of the migrants in the East and South district of Sikkim. The socioeconomic index is constructed with the composition of two indices, which are Social Index (SI), and Economic Index (EI). A social index is the combination of three indices, which are Health Index (HI), Education Index (EDI) and Demographic Index (DI). On the other hand, the Economic Index is the composition of Income Index (INI) and the other two variables, which are savings and loan of the respondents.

❖ **Socioeconomic Index (SEI)**

The index used to calculate the socio-economic status is called socioeconomic index. The socio-economic index is the aggregate result of the social index and economic index. The socio-economic index has to develop by the following formula (Maity et al., 2014):

$$Socio\ economic\ index\ (SEI) = \left(\frac{1}{2} \times SocialIndex\right) + \left(\frac{1}{2} \times EconomicIndex\right) \dots\dots\dots 5.1$$

❖ **Social Index (SI)**

The social indicator is influenced by factors that affect the social position of the individual or family such as health factor, demographic factor and educational factor. So, the social index is the summing up of the health index, demographic index and educational index. Socio index has to develop by the following formula (Maity et al., 2014):

$$Social\ Index\ (SI) = \left(\frac{1}{3} \times HealthIndex\right) + \left(\frac{1}{3} \times EducationalIndex\right) + \left(\frac{1}{3} \times DemographicIndex\right) .5.2$$

❖ **Health Index (HI)**

Health is not only defined as a physical structure but also associated with the factors that help to keep one healthy. Health status is investigated by using a self-developed dimension index, called Health Index. To keep this in mind, five important variables were considered for constructing the health index. The outcomes of the variables are binary. Variables with their category and codes are considered for preparing health index is given below (Maity et al., 2014):

Table 5.1 Health-related variable with their Category and Code

Variables	Category	Code	Category	Code
Drinking water facility	Yes	1	No	0
Sanitation facility	Yes	1	No	0
Garbage facility	Yes	1	No	0
Sewerage facility	Yes	1	No	0
Health insurance facility	Yes	1	No	0

After getting the values for those variables, health index can be constructed using the following formula:

$$Health\ Index\ (HI) = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value} \dots\dots\dots 5.3$$

❖ **Education Index**

Education is the backbone of society as well as the nation. So, without educational analysis of the migrants of the districts, the social index can't elaborate properly. In order to analyse the educational status of the migrants of the districts, a dimension index is set up for all the respondents.

Educational status is measured by using the literacy status measured in terms of years of schooling attained by the respondents. For those respondents who do not attain school or any other kind of formal training on education, are given a score '0' and for others assign a score according to their years spent in school with a minimum score of one year. To create the Education Index, first respondents 'educations are categorized based on their highest academic achievement. The value is assigned to 6 sections ranged 0-16 (Table 5.2).

Table 5.2 Educational Category and Code

Category	Code
No formal education	0
Primary education	5
High school education	10
Technical Education	13
Graduation	15
Professional education	16

The following formula was used to construct the educational index of the respondent from their values generated from the education level (Maity et al., 2014).

$$Educational\ Index\ (EDI) = \frac{Actual\ years\ of\ schooling\ of\ the\ respondents}{Maximum\ years\ of\ schooling} \dots 5.4$$

❖ **Demographic Index (DI)**

Demographic factors have influenced social status and have also been significant in the present study. Migrants of the East and South Districts of Sikkim mainly subjected to the size of the family of the respondents for their social status. So the demographic index developed on a family size of the respondents. Family size indicates the total number of family members in an individual household.

The following formula was used to construct the demographic index of the respondent from their size of family (Maity et al., 2014).

$$Demographic\ Index\ (DI) = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value} \dots \dots \dots 5.5$$

❖ **Economic Index (EI)**

For determining the Economic Status of migrants of the East and South districts of Sikkim a index has been framed up where savings by the earners and loan borrowers among the migrants has been considered with the monthly income instead of respondents' individual income to avoid the biasness because all the respondents of the study area are not living in the same livelihood although, they have a same monthly income. In the study area, it is also observed that migrants' economic status is below average and do not enjoy a far higher standard of living due to savings of money and getting loans for family members of households. That is why it is decided to make savings and loans along with monthly income of the respondents.

Table 5.3 Economic Variables with Category and Code

variables	Category	Code
Savings	Yes	1
	No	0
Loan	Yes	0
	No	1

❖ **Income Index (INI)**

Income index of the present study purely based on the monthly income of the migrants in the study area. Highest and lowest monthly income of the respondents is Rs. 100000/- and Rs. 2000/- respectively. Following formula used to develop income index (Maity et al., 2014):

$$Income\ Index\ (INI) = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value} \dots\dots 5.6$$

After getting the income index value, it is summing up with the binary value of savings and loan. For the construct the economic index this summing up values of individual respondents is calculated by the following formula:

$$Economic\ Index\ (EI) = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value} \dots\dots\dots 5.7$$

❖ **„t“test (two-tailed)**

The test statistic of a T test is T-value. Conceptually, T-values are an extension of the Z-score. In one way, the T-value represents how many standard units separate the media of the two groups (Navarro, 2015). The T test is a kind of speculative statistic. It is used to determine whether there are significant differences between the two groups

(Woodward and Elliott, 2007). Independent two-sample t-test has been chosen for hypothesis testing to conduct this study.

Independent two-sample t-test is defined as (Abbott, 2016):

$$t = \frac{\bar{x} - \bar{y}}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \dots\dots\dots 5.8$$

Where, t = t - value

\bar{x} = Sample mean of x variable

\bar{y} = Sample mean of y variable

n = Sample size

S = Standard deviation of the samples, and S defined as:

$$S = \sqrt{\frac{\sum(x_i - \bar{x})^2 + \sum(y_i - \bar{y})^2}{n_1 + n_2 - 2}} \dots\dots\dots 5.9$$

$H_0: \mu_1 = \mu_2$, and $H_1: \mu_1 \neq \mu_2$

in Two-tailed test at $(n_1 + n_2 - 2)$ Degree of freedom (df)

if, calculated t-value is greater than (>) critical t-value, then

H_0 is rejected and H_1 is accepted and vice – versa

H_0 = Null hypothesis and H_1 = Alternative hypothesis

❖ ANCOVA

ANCOVA refers to “analysis of covariates”. Covariates are commonly used as control variables within groups. Adjusted means are usually tested to see if there is a significant relationship between the ANCOVA output and the F-test attendance. (Rutherford, 2001). Comparing the meanings of core and integrated groups can provide insights into the role of covariates (Mukherjee et al.,2018). Significant F-tests are used to examine the effect of each root and interaction in a single break dependent group consisting of individual divisions and for multiple (> 2) groups. (Krieg, 2012). F-group-variant consists of split segments. If the math p-value is small, significant relationships exist.

F- test is defined as (Gupta, 2000):

$$F = \frac{S_1^2}{S_2^2} \dots\dots\dots 5.10$$

Where, $S_1^2 = \frac{(X_1 - \bar{X}_1)^2}{n_1 - 1}$ and $S_2^2 = \frac{\sum(X_2 - \bar{X}_2)^2}{n_2 - 1}$

It should be noted that S_1^2 is always the larger estimated of variance, i.e. $S_1^2 > S_2^2$

$$F = \frac{\text{Larger estimated of variance}}{\text{Smaller estimated of variance}} \dots\dots\dots 5.11$$

$$\begin{aligned} n_1 - 1 &= v_1 \\ &= \text{Degree of freedom for sample having larger variance and } n_2 \\ - 1 &= v_2 \\ &= \text{Degree of freedom for sample having smaller variance} \end{aligned}$$

The calculated value of F is compared with the tabulated value of v_1 and v_2 at the significance level of 5% or instantaneous 1%. If the calculated value of F is greater than the tabulated value, then the F ratio is considered significant and the null estimate is discarded. On the other hand, if the calculated value of F ratio is less than the tabulated value, the null hypothesis is accepted and it is assumed that both the samples came from the same variable of the population. (Gupta, 2000).

5.3 Socio-Economic conditions of migrants in East district of Sikkim

5.3.1 Demographic Profile of sample migrants

Demography worries the statistical techniques of human beings regarding basically the measurement of the dimensions, growth and diminution of the human beings, the proportion of dwelling being born or dying in the identical place or place and related functions of fertility, mortality and marriage (Cox, 1976). Demography is a totally technical and pretty mathematical take a look at of the vital facts of the human population (specifically birth, death and migration) as well as of the traits of populace structure (including age, sex and marital repute) as they make a contribution to an understanding of populace changes (Raj, 2003).

Demographic profile of sample migrants includes age and sex structure, marital status, religion and caste composition, mother tongue, family types and size, level of education, and birthplace has taken into consideration.

5.3.1.1 Age structure

The age structure of respondents in the East district of Sikkim (Table 5.4) reveals that the maximum number of respondents belongs to the age group between 20 years to 44 years, which indicates that respondents of the district mainly in-migrated to the district for economic purpose. Table 5.4 shows the age group of 25 years to 29 years having the highest percentage, which is 26.84% and the age group belonging to less than 19 years occupied the lowest at 2.11%. 24 number of respondents (12.63%) belongs to the age group of 20 to 24 years; 34 number of respondents (17.89%) belongs to the age group

of 30 to 34 years; 31 number of respondents (16.32%) belongs to the age group of 40 to 44 years. But, among the respondents' aged in-migrated persons are very low (Table 5.4) means that in-migrants return to their native place after completing their work due to land laws and Citizenship Act. of state.

Table 5.4 Age structure of sample in-migrant population in the East district of Sikkim

Age group	Number	%
< 19	4	2.11
20-24	24	12.63
25-29	51	26.84
30-34	34	17.89
35-39	31	16.32
40-44	17	8.95
45-49	8	4.21
50-54	8	4.21
55-59	5	2.63
> 60	8	4.21
Total	190	100

Source: Household Survey, 2018

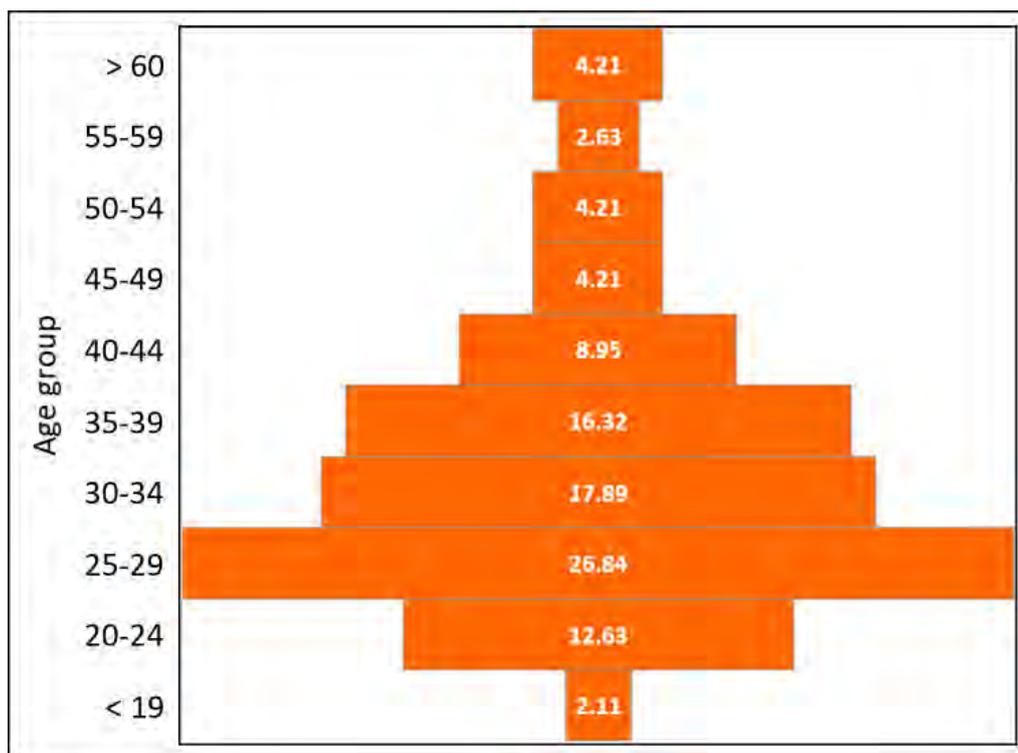


Figure 5.1 Age structure of respondents in the East district of Sikkim

5.3.1.2 Religion

After the studying of the religious composition of migrants of the East district of Sikkim (Table 5.5) reveals that the area consists of three major religious groups i.e. Hindu, Muslim and Christian. Among these three religious' groups of migrants, Hindu occupies the highest percentage which is 67.89. Followed by Muslim which occupies 28.42% and lastly Christian occupies very little which is only 3.68%. Lower bound on frequencies at 95% confidence interval ranges between 61.26 to 1.01 and upper bound on frequencies at 95% confidence interval ranges between 74.53 to 6.36.

Table 5.5 Religious composition of migrants in the East district of Sikkim

Religion	No. of respondent	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Christian	7	3.68	0.04	1.01	6.36
Hindu	129	67.89	0.68	61.26	74.53
Muslim	54	28.42	0.28	22.01	34.83

Source: Household Survey, 2018

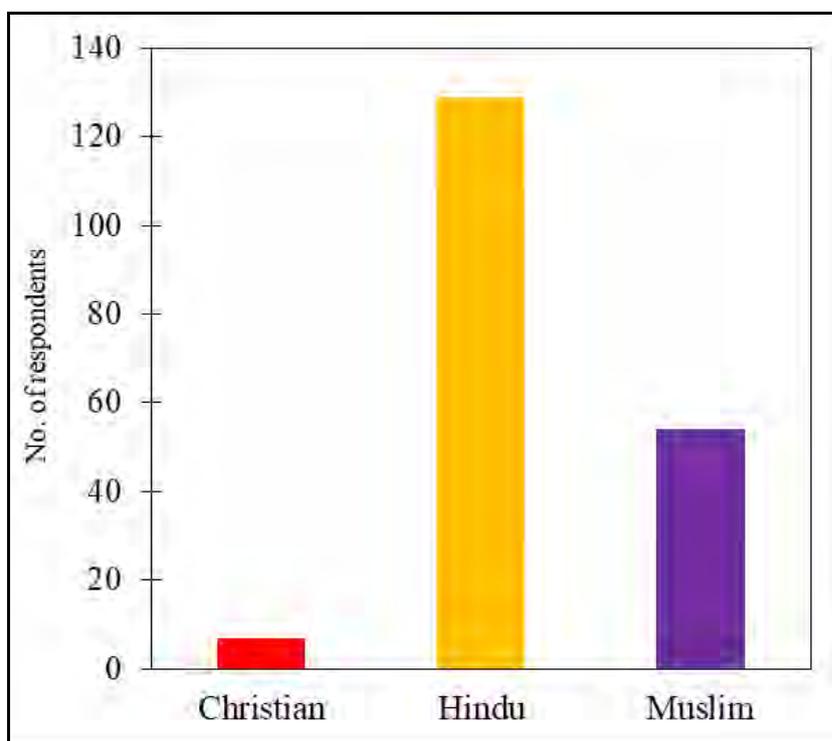


Figure 5.2 Religious composition of migrants in the East district of Sikkim

5.3.1.3 Caste

Caste composition of migrants of the East district of Sikkim shows (Figure 5.3) that all the five categories of caste are found in the district. General or unreserved category occupies the highest percentage which is 48.95, followed by OBC-A category which is 19.47%, Schedule Caste 17.89%, OBC-B 8.95% and Schedule Tribe category among the migrants occupies only 4.74%. Upper bound on frequencies at 95% confidence interval ranges from 41.84 for the unreserved category to 1.72 for schedule tribe category. Whereas, upper bound on frequencies at 95% confidence level ranges from 56.06 for unreserved category to 7.76 for scheduled tribe category (Table 5.6).

Table 5.6 Caste composition of migrants in the East district of Sikkim

Caste	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Gen	93	48.95	0.49	41.84	56.06
OBC-A	37	19.47	0.19	13.84	25.1
OBC-B	17	8.95	0.09	4.89	13.01
SC	34	17.89	0.18	12.44	23.35
ST	9	4.74	0.05	1.72	7.76

Source: Household Survey, 2018

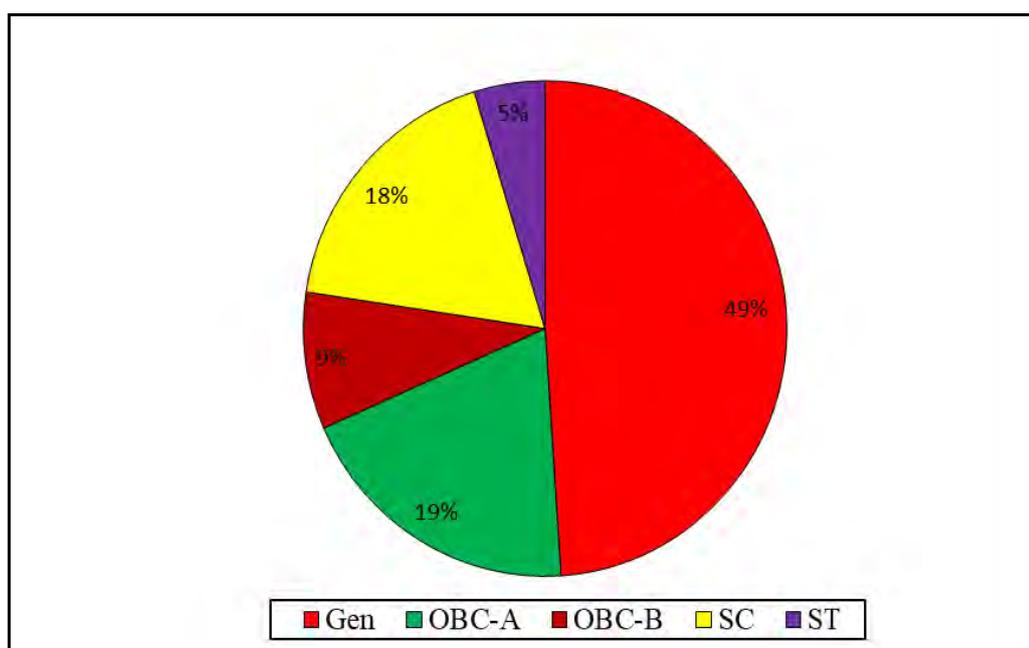


Figure 5.3 Caste composition of migrants in the East district of Sikkim

5.3.1.4 Mother tongue

Mother tongue is the basic element of the culture of a group of people (Corder, 1983). Migrants of the East district of Sikkim have come from different cultural areas, where they have different mother tongues. They used some regional and local languages as their mother tongue. Migrants of the East district of Sikkim mainly used twelve languages as their mother tongue. Among these twelve languages, five languages are regional language, which is Hindi, Bengali, Nepali, Rajasthani and Haryanvi and rest of seven languages are local languages, which are Adibasi, Arabi, Bhojpuri, Marwari, Orao, Rajbanshi and Suryapuri (Table 5.7). Among all these mother tongues used by the migrants of the East district of Sikkim, Bhojpuri and Bengali are the main mother tongues. Bhojpuri occupies the highest percentage among the mother tongue which is 45.79 followed by Bengali which is 27.37%. Among the others mother tongue Hindi occupies highest percentage which is 7.37, followed by Orao 5.79%, Marwari 5.26%, Nepali 3.16%, Rajbanshi 1.58%, Haryanvi 1.06%, Arabi 1.05% and lastly, Adibasi, Rajasthani and Suryapuri occupy the lowest percentage of mother tongue spoken by the migrants of East district of Sikkim, which is only 0.53% each (Figure 5.4). Mother tongue of migrants of the district have upper bound and lower bound frequencies ranging between 52.87 to 1.56 and 38.71 to 0.00 respectively at 95% confidence interval.

Table 5.7 Mother tongue of migrants in the East district of Sikkim

Mother tongue	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Adibasi	1	0.53	0.01	0.00	1.56
Arabi	2	1.05	0.01	0.00	2.50
Bengali	52	27.37	0.27	21.03	33.71
Bhojpuri	87	45.79	0.46	38.71	52.87
Haryanbi	2	1.06	0.01	0.00	2.50
Hindi	14	7.37	0.07	3.65	11.08
Marwari	10	5.26	0.05	2.09	8.44
Nepali	6	3.16	0.03	0.67	5.64
Orao	11	5.79	0.06	2.47	9.11
Rajasthani	1	0.53	0.01	0.00	1.56
Rajbanshi	3	1.58	0.02	0.00	3.35
Suryapuri	1	0.53	0.01	0.00	1.56

Source: Household Survey, 2018

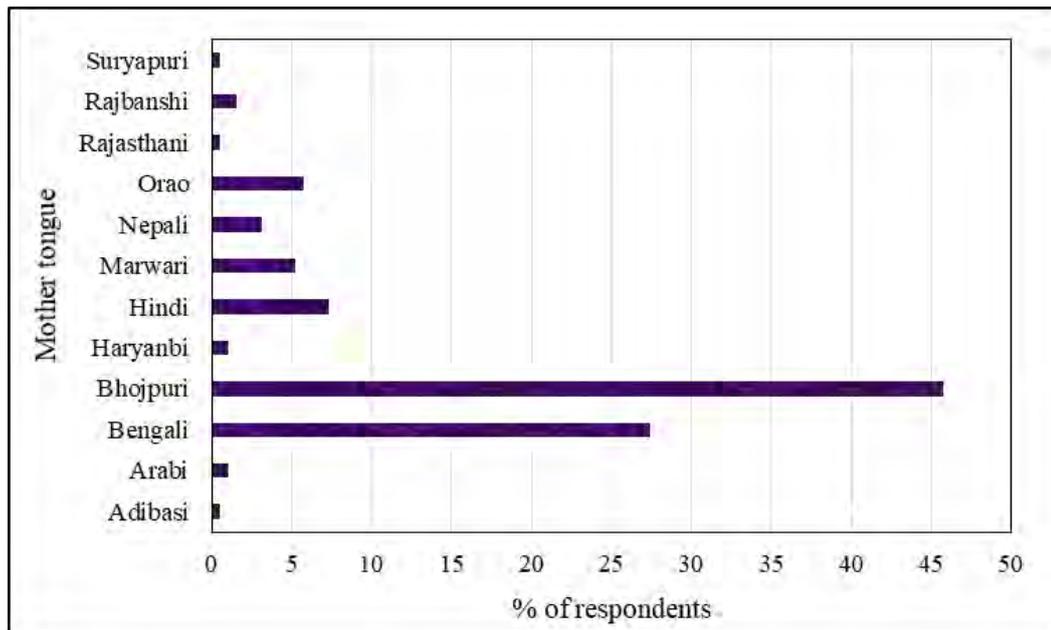


Figure 5.4 Mother tongue of migrants in the East district of Sikkim

5.3.1.5 Marital status

Marital status is one of the important characteristics of the demographic structure (Raj, 2003). Marital status means an individual married or unmarried. Normally as per marital status there are four marital status classes, which are married, unmarried, divorced (separated) and widow or widower (Srivastava & Srivastava, 2004). It found from Table 5.8 there are three categories in the marital status among the migrants of East district of Sikkim, which are married, unmarried and widow or widower. No divorce case has been found among the migrants of the East district of Sikkim. Among the migrants of the East district of Sikkim 65.26 % migrants are married and 32.63% of migrants are unmarried. On the other hand, only 4% of migrants are in the category of widow or widower (Figure 5.5). So, it is found that the maximum number of migrants belonging to the age group is 21 years to fifty years. All the migrants fall under the age group of the active population (15 to 60 years of age), who are working very laborious and skilful. Lower bound of the marital status of the district on frequencies at 95% confidence interval ranges from 58.49 to 0.06 and upper bound frequencies of the marital status of the district on frequencies at 95% confidence interval range from 72.03 to 4.15.

Table 5.8 Marital status of migrants in the East district of Sikkim

Marital status	No. of responder	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Married	124	65.26	0.65	58.49	72.03
Un-married	62	32.63	0.33	25.96	39.30
Widow	4	2.11	0.02	0.06	4.15

Source: Household Survey, 2018

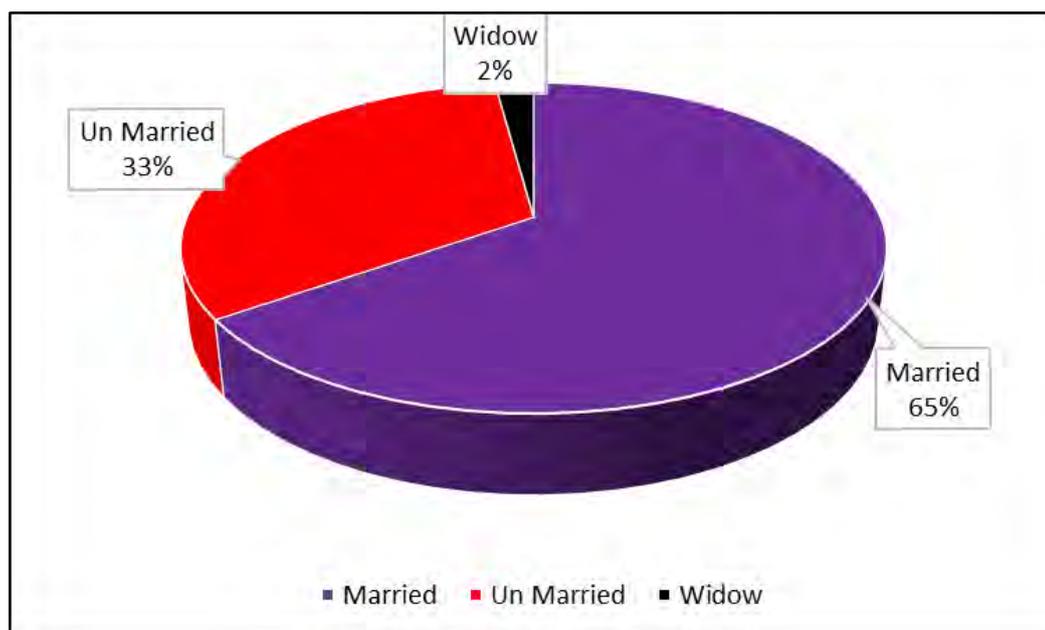


Figure 5.5 Marital status of migrants in the East district of Sikkim

5.3.1.6 Place of birth

Place of birth considered the rural and urban area where in-migrants of the district were born. Place of birth of migrants of the East district of Sikkim shows in Table 5.9. It reveals that 99 respondents who are 52.11% among the migrants have their birthplace in West Bengal, whereas 57 numbers of respondents which are 30.00% having their birthplace in Bihar, followed by Uttar Pradesh 8.95%, Rajasthan 4.74%, Nepal 1.58%, Delhi and Haryana both have 1.05% and lastly Assam which is 0.53% (Figure 5.6). Lower and upper bound considered on frequencies at 95% confidence interval for the birthplace of migrants in the district. Lower bound is highest 43.42 for West Bengal and lowest 0.00 for Assam and Nepal. Whereas, upper bound is highest 61.69 for West Bengal and lowest 1.56 only for Assam.

Table 5.9 Birthplace of migrants in the East district of Sikkim

Birth Place	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Assam	1	0.53	0.01	0.00	1.56
Bihar	57	30.00	0.30	23.48	36.52
Delhi	2	1.05	0.01	0.00	2.50
Haryana	2	1.05	0.01	0.00	2.50
Rajasthan	9	4.74	0.05	1.72	7.76
Uttar Pradesh	17	8.95	0.09	4.89	13.01
West Bengal	99	52.11	0.52	43.42	61.69
Nepal	3	1.58	0.02	0.00	3.35

Source: Household Survey, 2018

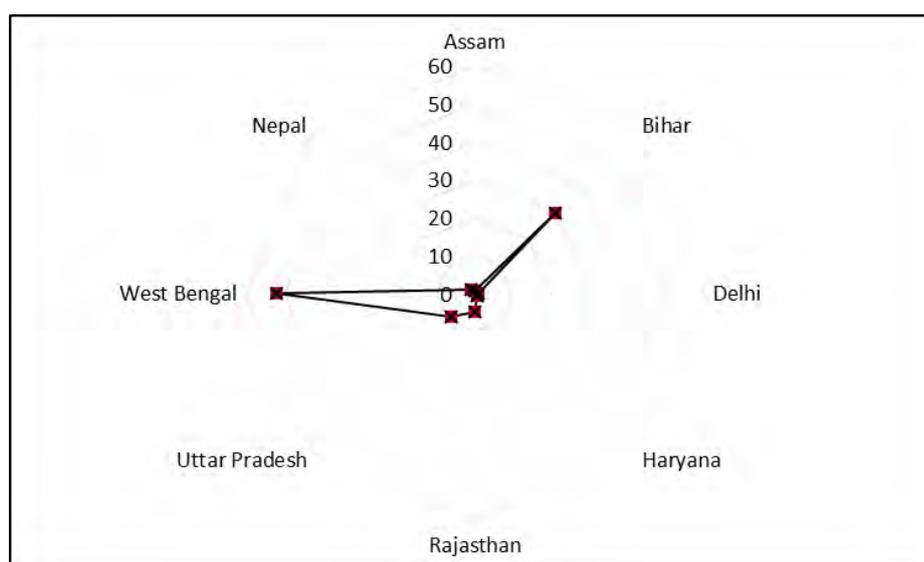


Figure 5.6 Birthplace of migrants in the East district of Sikkim

5.3.1.7 Types of the family

According to the Cambridge dictionary, family refers to a group of people who are related to each other, such as a mother, a father and their children by the marriage under the social custom or biological interference or by the law of the country. So it can be said that the family is a basic social unit consisting of parents and their children, considered as a group, whether dwelling together or not. There are six types of families found in the world, which are 1) Nuclear family, 2) Joint family, 3) Extended family, 4) Blended family, 5) Grandparent family and 6) family by choice (Warms and Nanda, 2019).

In India, specially three forms of families observed such as 1) Nuclear family, 2) Joint family and 3) prolonged circle of relatives. The nuclear own family is likewise referred to as the conjugal own family. Nuclear households are composed in their

married partners and their offspring. Joint families are composed of sets of siblings, their spouses and their dependent kids. Extended households include at least three generations i.e., grandparents, married offspring and grandchildren (Warms and Nanda, 2019)

The two types of families of migrants are found in the East district of Sikkim. Among the migrants of the East district of Sikkim 159 number of respondents having the nuclear family which is 83.68% of the total migrants of the district, whereas, only 31 number of respondents who are 16.32% of the total migrants of the district having the joint family (Figure 5.7). After the analysis of Table 5.10, it is found that the maximum numbers of migrants are in the nuclear family due to the fact that about 81percent of the migrants live alone or without their family members in Sikkim for their work purpose. The main reason for living alone is the costly or laborious lifestyle in the mountain terrain. Lower bound and upper bound on frequencies is ranged between 11.06 to 21.57 for joint family and 78.43 to 88.94 for nuclear family at 95% confidence interval.

Table 5.10 Family type of migrants in the East district of Sikkim

Family type	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Joint	31	16.32	0.16	11.06	21.57
Nuclear	159	83.68	0.84	78.43	88.94

Source: Household Survey, 2018

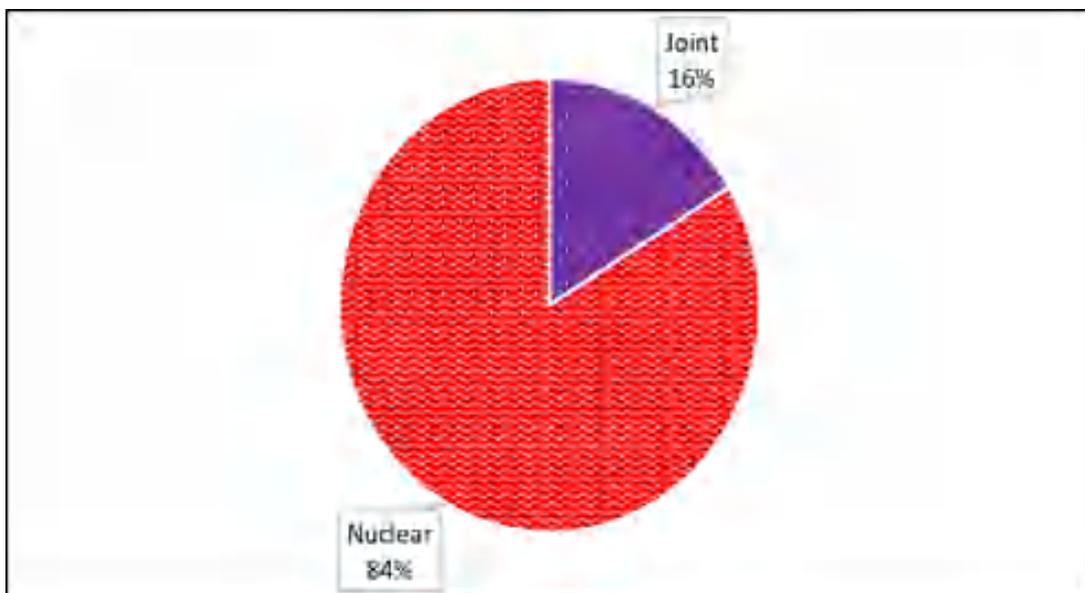


Figure 5.7 Types of family of migrants in the East district of Sikkim

5.3.1.8 Family size

The size of the family is used to represent the total number of individuals comprising a family unit (Treas, 1981). The author argued that the concept of the family size has two components, which are numbers of children and numbers of adults in households.

The family size of the migrants in the East district of Sikkim has been considered into three categories: 1) Small, 2) Medium and 3) Large. Small family size includes one or two family members in a particular household. Medium size of family includes three to four numbers of family members who live together in a family. Whereas, more than four family members living together in a household is known as large family size. Among the migrants of the East district of Sikkim, 170 number of respondents which form 89.47% live in a small family. About 17 numbers of respondents who are 8.95% among the migrants have medium size of the family. Lastly, only 3 numbers of respondents which form 1.58% have their large family or it can be said that these 3 numbers of respondents have their large family with them in the district (Figure 5.8). Lower bound frequencies of the family size of migrants in the East district of Sikkim ranges between 79.79 to 0.00 and upper bound frequencies range between 99.36 to 4.06 at 95% confidence interval (Table 5.11).

Table 5.11 Family size of migrants in the East district of Sikkim

Family size	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Small	170	89.47	0.89	79.79	99.36
Medium	17	8.95	0.09	2.01	16.08
Large	3	1.58	0.02	0.00	4.06

Source: Household Survey, 2018

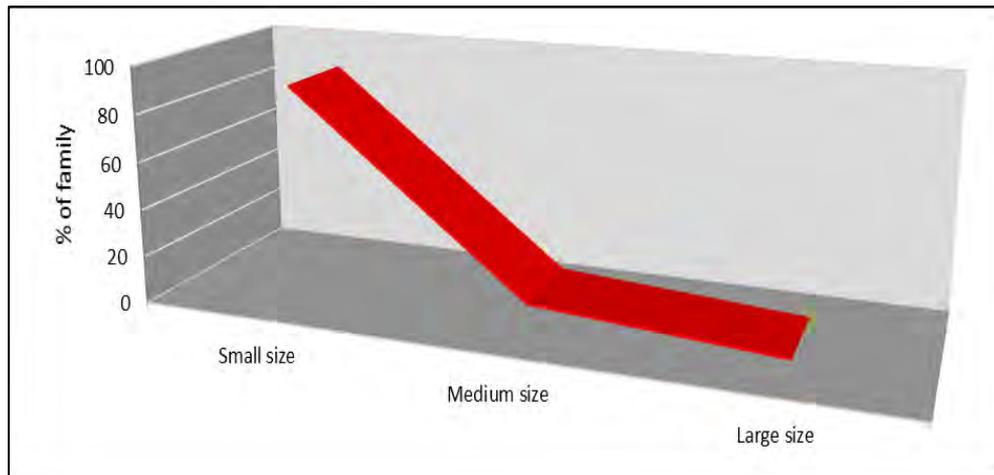


Figure 5.8 Family size of migrants in the East district of Sikkim

5.3.1.9 Educational level

Education is an important tool for vertical mobility in the social ladder (Self & Grabowski, 2004). The higher level of literacy, especially among women workers, is an important parameter in migrants' development paradigm (Roy et al., 2015). Literacy rate amongst sample migrants in the East district of Sikkim is about 84.21%. This is higher than the national average and near about state averages of the total population. According to the 2011 census, in Sikkim literacy rate for male is 86.55% and for females it is 75.61%. The analysis of Table 5.12 manifest that 15.79% of the migrants in the study area are completely illiterate and they are spread in all sectors. Some of the sample workers (10.53%), mainly females, have only primary level education, but some of them do not know to read and write. Majority of the migrants (64.74%) had a high school education and mainly worked in unorganized sectors. About 5.26% of migrants had studied a degree or more and this is higher among the migrants. Some people among migrants of the district have professional education (1.05%) and some have technical education at 2.63% (Figure 5.9). Upper bound is range between 71.53 to 2.50 and lower bound is range between 57.94 to 0.00 on frequencies at 95% confidence interval. It is not like that the migrants do not realize the importance of education. When asked specifically, most migrants reiterate the importance of schooling. The woeful rate of literacy has direct consequence in confining workers in unskilled manual works.



Plate 5.1 Educational facilities at a. Jorethang b. Singtham c. Sambuk d. Gangtok

Table 5.12 Education level of migrants in the East district of Sikkim

Education level	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Illiterate	30	15.79	0.16	10.60	20.97
Primary Education	20	10.53	0.11	6.16	14.89
High School Education	123	64.74	0.65	57.94	71.53
Graduation	10	5.26	0.05	2.09	8.44
Professional Education	2	1.05	0.01	0.00	2.50
Technical education	5	2.63	0.03	0.06	5.70

Source: Household Survey, 2018

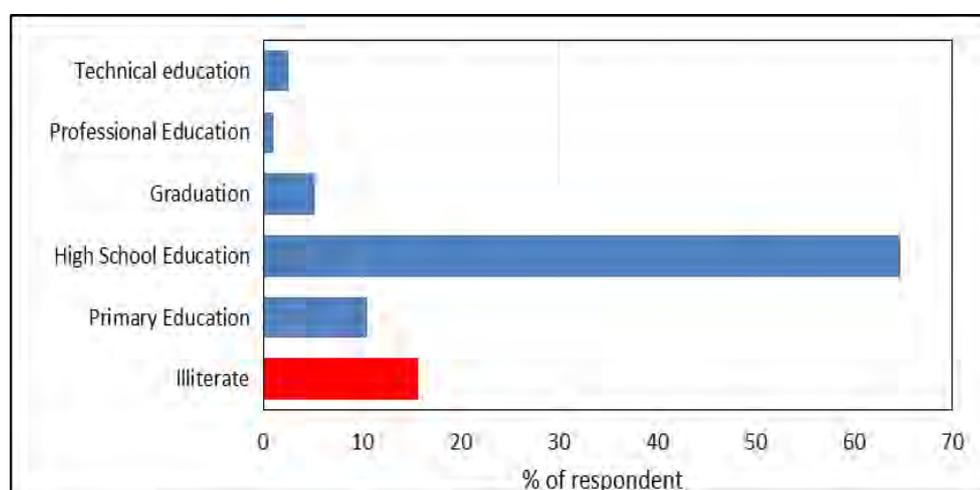


Figure 5.9 Education level of migrants in the East district of Sikkim

5.4 Economic Profile

The economy is a basic element of socio-economic structure of an area. Analysis of the economic profile unfolds the varied economic, demographic and cultural attributes of an area (Manoj & Viswanath, 2015). Among all the social attributes of population, economic profile is of dominant significance, since it provides an index to many personal, social and demographic characteristics (Szirmai, 2015). The study of economic profile holds the importance of workforce (Fulford, 2004). Work and its function in civilization has always been the subject of significant public observations and debate. However the way being without a job rate is increasing, the crisis of work has become more significant in current years. A difference has often been made

between total population and manpower, while total population refers to the whole population inhabiting the area, the manpower consists of only those individuals who could play a part in economically productive activities in the occasion of need (Suwal & Dahal, 2014).

5.4.1 Occupation

The study of the economic profile of the population remains incomplete without its reference to the occupational structure of a population in an area. Occupation refers to a person's usual or principal work or business, especially as a means of earning a living; profession. The occupation of an individual refers to his trade, profession, types of work etc. (Chandna, 2006). Occupation of an individual may be classified in five categories, which are 1) Primary activities, which include raw materials, 2) Secondary activities, which includes industries and manufacture, 3) Tertiary activities refer to service sectors, 4) Quaternary activities mean knowledge sector and 5) Quinary activities include co-operative activities.

Migrants of East district of Sikkim are engaged in different economic activities as per their eligibility and skills. Migrants of the district mainly engaged in secondary and tertiary activities. But, most of them are labour workers who are engaged in different constructional and service sectors. Some of the migrants are in the business sector who are very minimal in numbers. According to Table 5.13, most of the migrants in the district are daily workers followed by the business sector. These two types of occupation occupy more than 40% of the total occupational structure among the migrants in the district. About 49 numbers of migrants in the district are working as daily workers which is 25.79% of the total active migrants in the district. A total of 32 numbers of migrants are engaged in business sectors, which is 16.84% of the total active population among the migrants in the district. Maximum numbers of active migrants are engaged in these two types of activities. Others active migrants of the district are engaged in different economic sectors, which are only secondary and tertiary sectors e.g., cobblers; constructional workers and supervisors; contractors; bus drivers; hotel staff; industrial workers; service in private and public sectors; tailors etc. Among these economic activities cobbler and hotel workers are occupied maximum percentage after daily work and business, which is 6.32% of the total active migrants in the district followed by industrial workers (5.79%), paint workers and salesman (both occupied 2.56%), tailors (4.74%), salon (3.68%), constructional workers and mason

(both occupy 3.16%), contractor and laundry boy (both occupied 1.58%), drivers, private job and “fuchka” sellers (each occupied 1.05%) and constructional supervisors, hotel managers, shop workers and travelling workers are occupied only 0.53% of the total active migrants of the district (Figure 5.10).

So, it is found from Table 5.13 that all the migrants of the district are engaged in different occupations under secondary and tertiary activities. But all the occupation falls under the low-class category of society. They do not earn as their expectation for their livelihood. So. It can be said that the occupation structure of the migrants of the district is woeful.

Table 5.13 Occupation of sample migrants in the East district of Sikkim

Occupation	N	Percentage (%)	95% confidence interval
Business	32	16.84	11.52-22.16
Cobbler	12	6.32	2.86-9.77
Construction Supervisor	1	0.53	0.00-1.56
Construction Worker	6	3.16	0.67-5.64
Contractor	3	1.58	0.00-3.35
Daily Worker	49	25.79	19.57-32.01
Driver	2	1.05	0.00-2.50
Fuchka stall	2	1.05	0.00-2.50
Hotel Manager	1	0.53	0.00-1.56
Hotel Worker	12	6.32	2.86-9.77
Industrial Worker	11	5.79	2.47-9.11
Laundry Boy	3	1.58	0.00-3.35
Mason	6	3.16	0.67-5.64
Paint Worker	10	5.26	2.09-8.44
Pvt. Job	2	1.05	0.00-2.50
Salesman	10	5.26	2.09-8.44
Salon	7	3.68	1.01-6.36
Service	6	3.16	0.67-5.64
Shop Worker	1	0.53	0.00-1.56
Student	3	1.58	0.00-3.35
Tailor	9	4.74	1.72-7.76
Travel	1	0.53	0.00-1.56
Travel & Hotel	1	0.53	0.00-1.56

Source: Household Survey, 2018

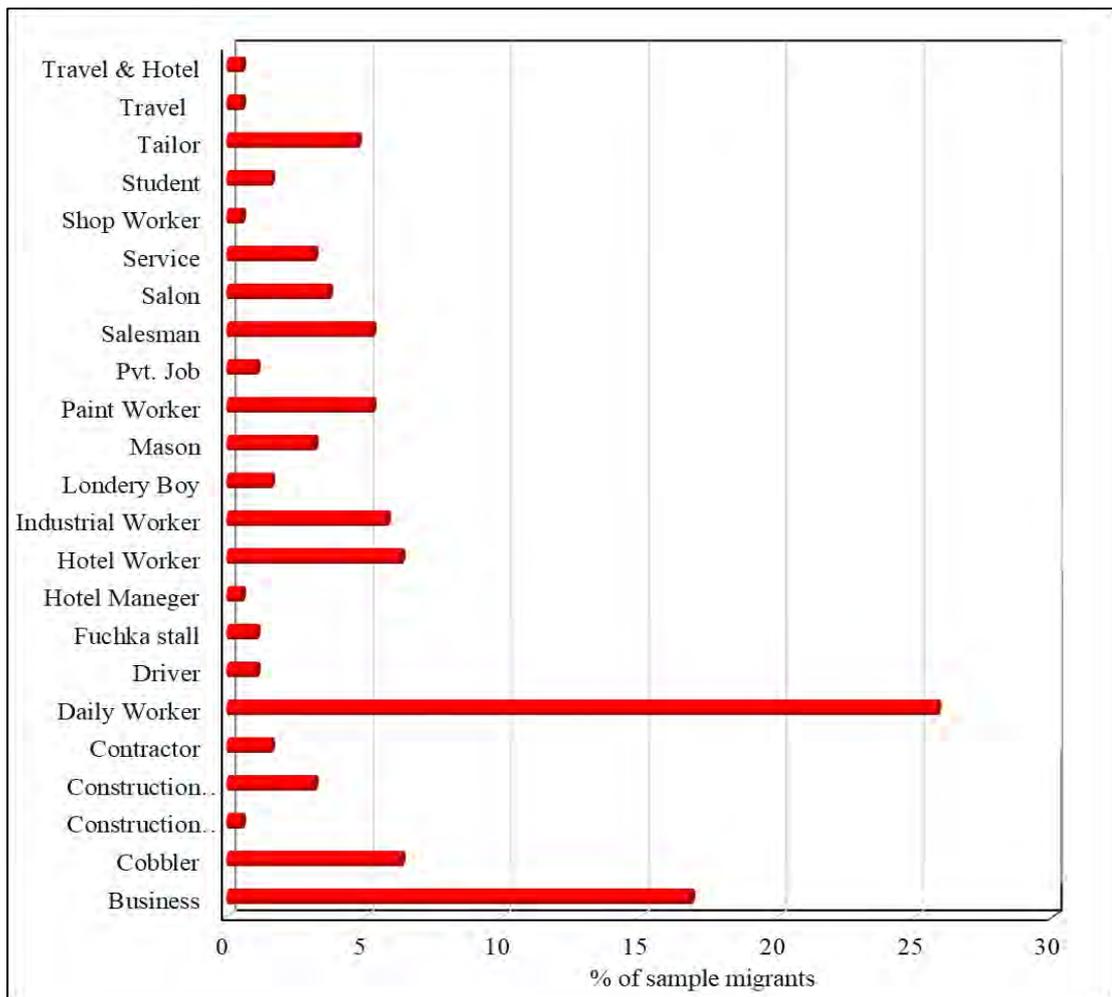


Figure 5.10 Occupational structure of migrants in the East district of Sikkim

5.4.2 Employment status

There are three categories of employment status in the district, which are served in private sectors, service in public sectors and self-employed. Total 139 numbers of respondents are self-employed in the district which is 73.16% among the total migrants' population. 46 numbers of respondents are engaged in private sectors which is 24.21% of the migrants and only 5 numbers of respondents are working at public sectors which are occupied only 2.63% of employment status (Figure 5.11). Employment status in private sectors is ranged between 18.12 – 30.30 at 95% confidence interval and employment status in public sectors ranges between 0.36 – 4.91 at 95% confidence interval. Whereas the employment status category of self-employed ranges between 66.86 – 79.46 at 95% confidence interval (Table 5.14). So, it can be said that the migrants of the district are mainly based on self-employment for their economic activities. Prospects of employment in public sectors is very unexpected for the in-migrants in the district.

Table 5.14 Employment Status of sample migrants in the East District of Sikkim

Types	N	Percentage (%)	95% confidence interval
Private	46	24.21	18.12 - 30.30
Public	5	2.63	0.36 - 4.91
Self	139	73.16	66.86 - 79.46

Source: Household Survey, 2018

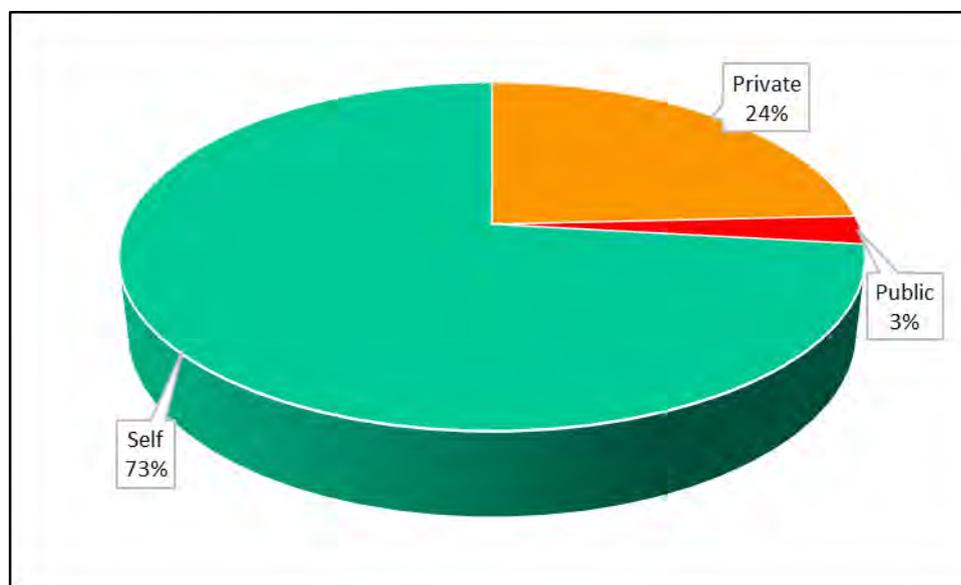


Figure 5.11 Employment status of migrants in the East district of Sikkim

5.4.3 Income

In-migrants of the East district of Sikkim are engaged in different economic sectors. There are three main employment status found among the in-migrants of the district. Some of the in-migrants are engaged in the public sector, some are engaged in the private sector and some of the in-migrants of the district are self-employed in various economic activities. Though in-migrants of the district are engaged in different economic activities, they have earned a variety of amounts from their economic activities. The in-migrants of the district have a wide range of monthly income, which ranges from Rs. 1500 to Rs. 75000 per month. The mean monthly income of the in-migrants of the district is Rs. 15015.79, which indicates the maximum numbers of in-migrants earn a very poor amount as monthly income. Standard deviation (S.D) of the monthly income is Rs. 12186.59, where the coefficient of variation (C.V) of the same is 81.16. Monthly income of the in-migrants of the district at 95% confidence interval ranges between Rs. 13271.80 to 16759.78. It reveals that 95% of the sample in-migrants have only Rs. 13271.80 to 16759.78 as their monthly income (Table 5.15). So, it is clear that more than 95 % of the in-migrants are economically backward.

Table 5.15 Average monthly income of sample migrants of East district of Sikkim

Statistic	Monthly income (Rs.)
Minimum	1500
Maximum	70000
Mean	15015.79
SD	12186.59
CV	81.16
95 % Confidence interval	13271.80 - 16759.78

Source: Household Survey, 2018

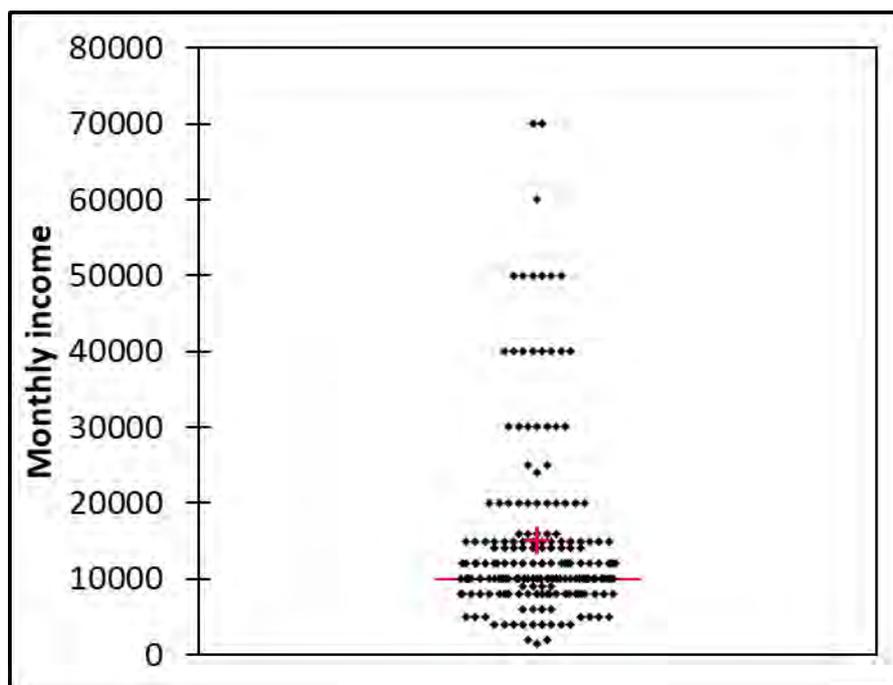


Figure 5.12 Scattergram of monthly income of sample migrants of East district of Sikkim

5.4.4 Remittance

It can be considered that most of the employed migrants in Sikkim regularly send some money home. Remittances continue to increase on an annual basis, although for low-income immigrants, the share of household remittances is declining at a declining rate with household income.

It has also observed a pattern of remittances increasing with age, although it closes at a declining rate until the middle of the quarter. This may be responsible for the high income of senior migrants, but it also suggests that it may increase the amount of remittance sent by senior migrants who are more likely to return to the country

permanently. It is further investigated in subsequent empirical analysis, control for income and various other factors that affect the level of remittances.

5.4.4.1 Annual amount of remittance

Annual remittance amount of the in-migrants of the East district of Sikkim has a wide range in nature. The minimum annual amount of remittance is Rs. 1000, where Rs. 240000 is the highest remittance amount of sample migrants. The average annual amount of remittance is Rs. 65984.50. The standard deviation of the annual amount of remittance is Rs. 37058.02 with CV 56.16. The annual amount of remittance of the in-migrants of the district at 95% confidence level is ranges between Rs. 59528.54 to 72440.46, which indicates that the maximum numbers of in-migrants in the district have remitted a part of their income to their homeland for the various purposes (Table 5.16 and Figure 5.19a).

Table 5.16 Annual remittances of sample migrants of East district of Sikkim

Statistic	Annual remittance (Rs.)
Minimum	1000
Maximum	240000
Mean	65984.50
SD	37058.02
CV	56.16
95 % Confidence interval	59528.54 - 72440.46

Source: Household Survey, 2018

5.4.4.2 Recipient of remittance

Recipients of remittance revealed that there is a wide variety for this purpose. 46 numbers of respondents sent their remittance to the family as a whole which is 35.11% followed by spouses at 26.72%; parents at 20.74%; fathers 17.56% and to a lesser extend mothers and children at 0.76% and 1.53%, respectively (Figure 5.13a). Those migrants who sent their remittance to their family at 95% confidence interval ranged between 26.94 (lower bound frequencies) and 43.29 (upper bound frequencies). Whereas, mother as the recipient is least in number and ranged between 0.00 as lower bound frequencies to 2.25 as upper bound frequencies at 95% confidence interval (Table 5.17).

Table 5.17 Recipient of remittance of sample migrants in the East District of Sikkim

Recipient	N	Percentage (%)	95% confidence interval
Family	46	35.11	26.94 - 43.29
Father	23	17.56	11.04 - 24.07
Mother	1	0.76	0.00 - 2.25
Parents	28	20.74	12.72 – 26.11
Son	2	1.53	0.00 - 3.63
Wife	35	26.72	19.14 - 34.29

Source: Household Survey, 2018

5.4.4.3 Purpose of remittance

Slightly over a one-third of the migrants surveyed were unaware of what the remittances were used for, which may reflect the tendency of some migrants to let family members back home decide on the uses of remittances. Total 104 numbers of sample respondents indicated that a portion of their remittances was spent on different household purposes, which is 77.04% of the total migrants who sent remittance to their families. A smaller fraction of respondents stated that a share of their remittances was used to finance investments, which included house purchase, house construction, or supporting a business and some of their remittances were kept aside as savings. But they considered that these purposes concluded with household purposes. Nonetheless, 2.96% of sample stated that their remittance used in education purpose of their children education and 18.52% stated that their remittance used for household purposes along with education. (Figures: 5.13b). Remittance used in household purpose along with expenditure in medicine and only for medicine occupying 0.74% each among the migrants who sent remittance. Remittance used in household purposes and financial investment and savings is ranged between 69.94 as lower bound frequencies to 84.13 as upper bound frequencies at 95% confidence interval (Table 5.18).

Table 5.18 Purpose of remittance of sample migrants in the East District of Sikkim

Purpose	N	Percentage (%)	95% confidence interval
Education	4	2.96	0.10 - 5.82
Household	104	77.04	69.94 - 84.13
Household & Education	25	18.52	11.97 - 25.07
Household & Medicine	1	0.74	0.00 - 2.19
Medicine	1	0.74	0.00 - 2.19

Source: Household Survey, 2018

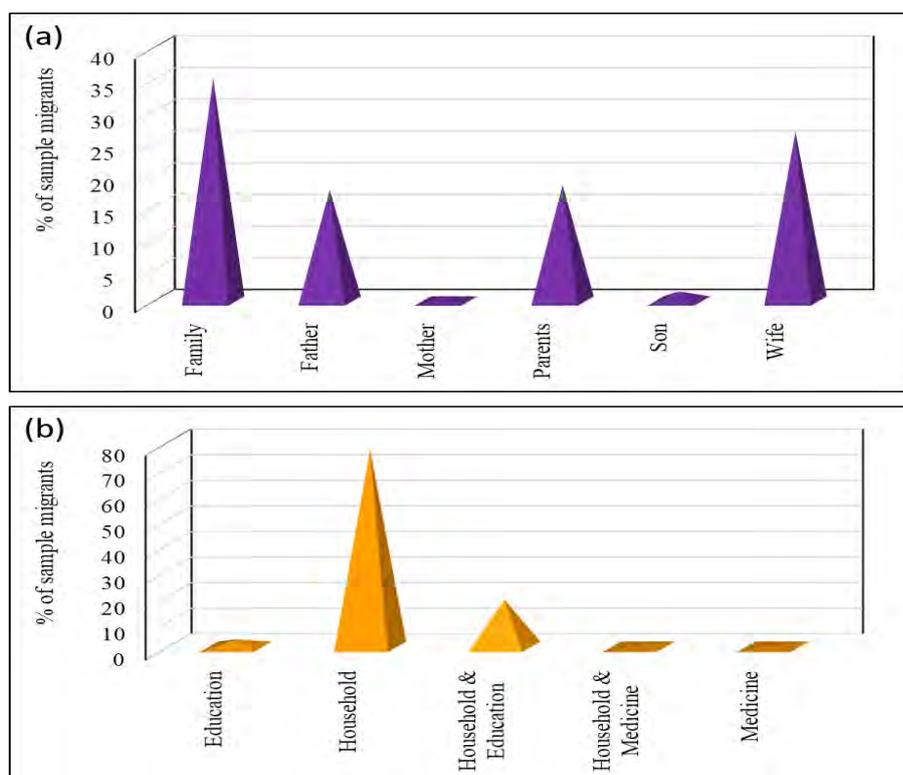


Figure 5.13 Migrant’s remittance of (a) Recipients and (b) Purpose in the East district of Sikkim

5.4.4.4 Medium of remittance

The vast majority of sampled migrant’s sent money to their home through money exchange houses. 40% of the respondents who remitted money used a money exchange house to send money to home and 40.74% sent money at home with a friend or relative who was travelling back. Only a small fraction (2.96%) used both the medium i.e. through banks and by hand to send their money at home. Whereas, 16.30% of respondents sent money at home by himself (Figure 5.14). The medium of remittance through banks and by hand of friends and relatives ranges between 31.74 to 48.26 and 32.02 to 48.50 respectively at 95% confidence interval (Table 5.19).

Table 5.19 Medium of remittance of sample migrants in the East District of Sikkim

Medium	N	Percentage (%)	95% confidence interval
Bank	54	40.00	31.74 - 48.26
Bank & By Hand	4	2.96	0.10 - 5.82
By hand	55	40.74	32.02 - 48.50
Self	22	16.30	10.07 - 22.53

Source: Household Survey, 2018

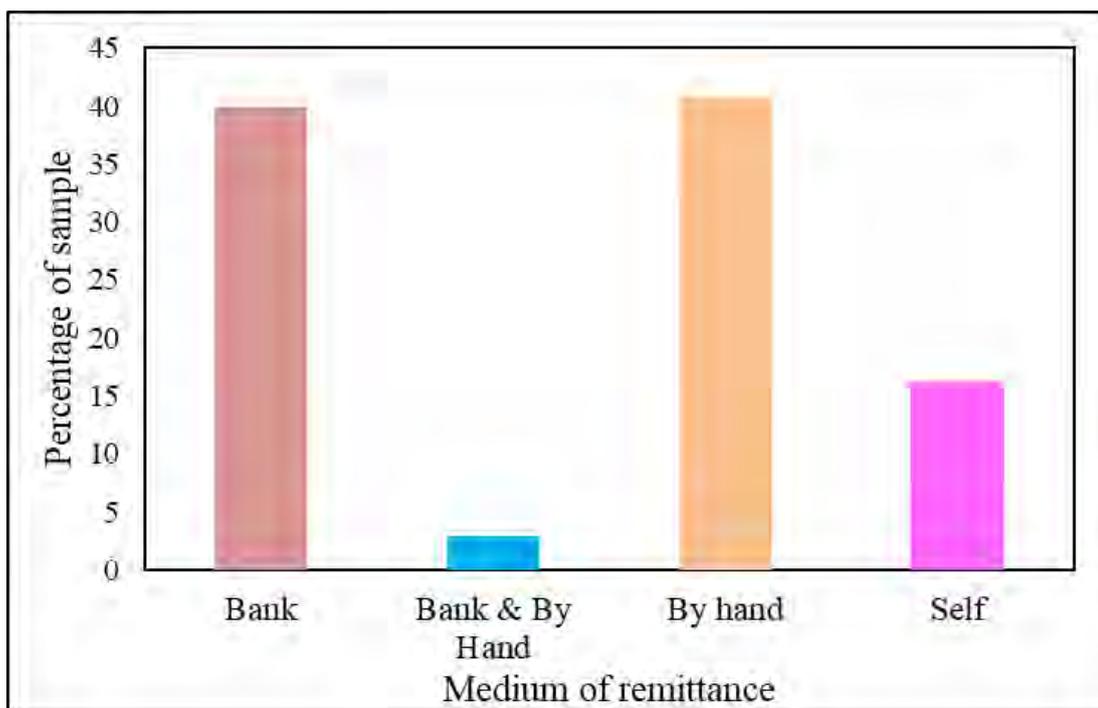


Figure 5.14 Medium of remittance of migrants in the East district of Sikkim

5.4.5 Expenditure

Spending the amount for the livelihood of a person is categorized as expenditure. Expenditure has many sources like food and drinks; electricity and fuel; clothing, health, education, travel or entertainment and other various livelihood purposes. Expenditure of the sample migrants of the East district of Sikkim reveals the variety of expenditure according to the amount of income of migrants of the district.

Monthly expenditure for food and drinks of the migrants of the district ranges between Rs. 1000 to Rs. 20000. The average expense for food and drinks is about Rs. 3657.4. Expenditure for food and drinks at 95% confidence level ranges between Rs. 3245.69 to Rs. 4069.23. Expenditure on electricity ranges between Rs. 0.00 to Rs. 3000. The average expenditure on electricity is Rs. 716.31. Expenditure of the electricity by the migrants in the district at 95% confidence level ranges between Rs. 622.65 to Rs. 809.98. Expenditure regarding purchasing of cloth for the livelihood of the migrants in the district ranges between Rs. 200 to Rs. 3000 per month. The average expenditure on clothing is Rs. 795.09. The migrants of the district expense Rs. 710.33 to Rs. 879.85 per month for clothing at 95% confidence level. Health-related expenditure of the migrants in the district shows a remarkable output. Some of the migrants have no expenditure regarding their health issues. Expenditure for the health

purpose of the migrants in the district ranges between Rs. 0.00 to Rs. 5000 per month. The average expense for health issues of the migrants in the district is about Rs. 816.25. Expenditure for the health purpose ranges between Rs. 639.23 to Rs. 993.27 per month at 95% confidence level. Education scenario of the migrants in the district is in depressing conditions. Some of the migrants in the district have no expense related to education. Expenditure for education by the migrants in the district is about Rs. 0.00 to Rs. 5000 per month. Though average education expenditure is quite impressive by figure, Rs. 2413.56 per month by a single-family. Migrants of the district expense in education at 95% confidence level are Rs. 1875.35 to Rs. 2951.77. Expense for the travelling or entertainment by the migrants of the district is so striking. Some of the family have no expenditure regarding travelling or entertaining; there is maximum expenditure regarding travelling or entertaining is Rs. 5000 per month by some of the migrants' family (Figure 5.15). The average expense for the travelling or entertaining by the migrants of the district is Rs. 985.50, whereas it ranges between Rs. 808.27 to Rs. 1162.72 per month at 95% confidence level. Expenditure in other various purposes by the migrants of the district ranges between Rs. 300 to Rs. 15000 per month as per their amount of income. The average expense for various purposes is about Rs. 2420.21 per month by the migrants of the district. Its ranges between Rs. 2100.40 to Rs. 2740.03 per month at 95% confidence level of the sample migrants in the district (Table 5.20).

Table 5.20 Expenditure of sample migrants in the East District of Sikkim

Item	Minimum	Maximum	Mean	SD	95 % Confidence interval
Food/drinks	1000	20000	3657.46	2807.49	3245.69 - 4069.23
Heating/ Electricity	0	3000	716.31	562.57	622.65 - 809.98
Clothing	200	3000	795.09	548.01	710.33 - 879.85
Health	0	5000	816.25	795.47	639.23 - 993.27
Education	0	5000	2413.56	2065.27	1875.35 - 2951.77
Travel/ Entertainment	0	5000	985.50	1025.30	808.27 - 1162.72
Others	300	15000	2420.21	2222.83	2100.40 - 2740.03

Source: Household Survey, 2018

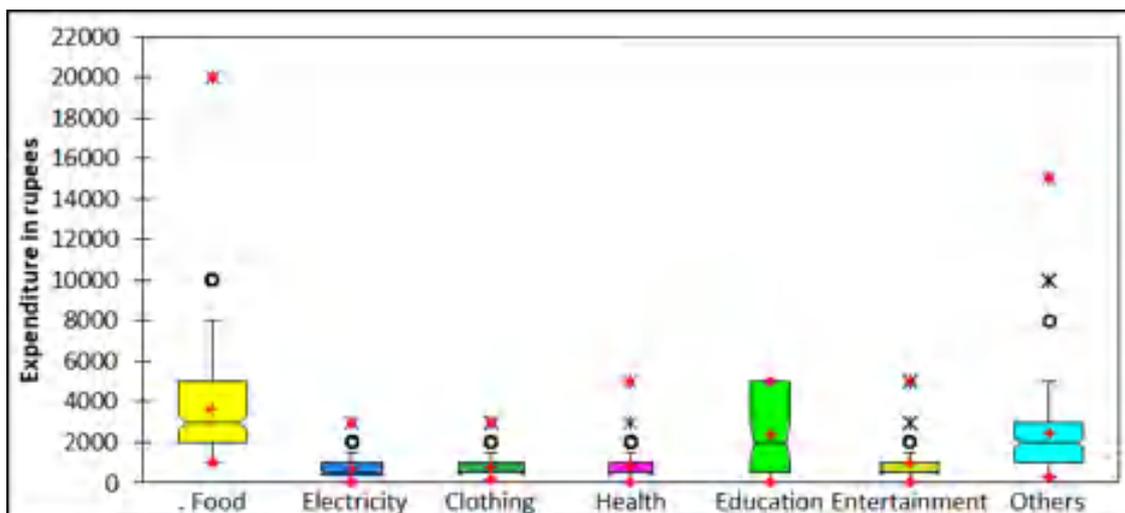


Figure 5.15 Boxplot of expenditure of sample migrants of East district of Sikkim

5.4.6 Savings

5.4.6.1 Types of savings

There are various types of savings mode among the migrants in the district. More than 48% of the migrants are able and willing to save their earnings monthly or yearly. Among them 32 numbers of respondents deposited their savings in any private sector, which is 34.41% among the total respondents, followed by Government sectors 32.26%; post office 20.43%; and in bank only 9.68%; whereas in both Government and private sectors, in both bank and LIC and only in LIC have occupying 1.08% each (Figure 5.16). Savings in private sectors ranged between 24.75 to 44.06 and Government sectors ranged between 22.76 to 41.76 at 95% confidence intervals. Whereas, both Government and private sectors, in both bank and LIC and only in LIC are ranges between 0.00 (lower bound frequencies) and 3.17 (upper bound frequencies) at 95% confidence interval (Table 5.21)

Table 5.21 Types of savings of sample migrants in the East District of Sikkim

Type	N	Percentage (%)	95% confidence interval
Bank	9	9.68	3.67 - 15.69
Bank, LIC	1	1.08	0.00 - 3.17
Govt.	30	32.26	22.76 - 41.76
Govt. & Private	1	1.08	0.00 - 3.17
LIC	1	1.08	0.00 - 3.17
P.O.	19	20.43	12.24 - 28.62
Private	32	34.41	24.75 - 44.06

Source: Household Survey, 2018

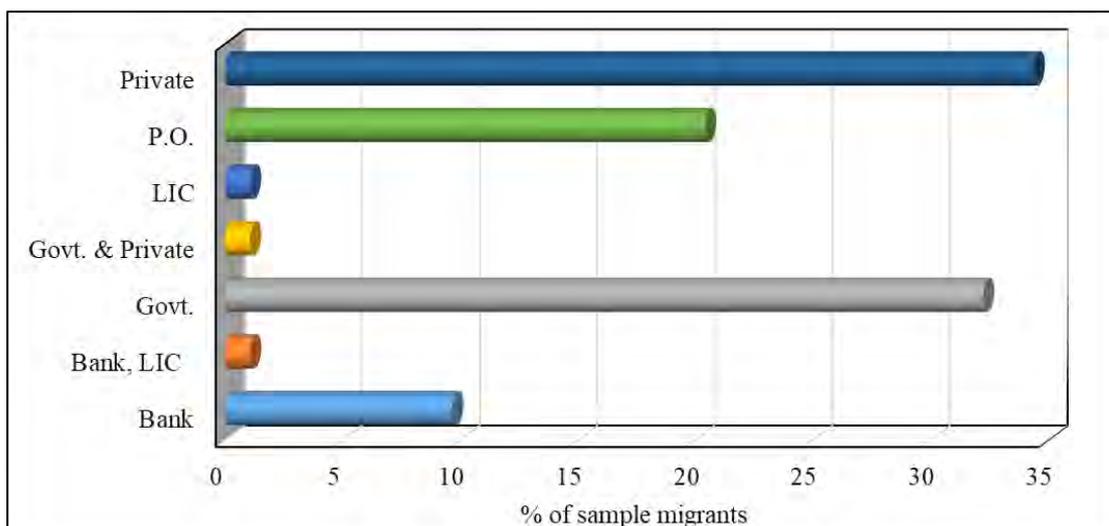


Figure 5.16 Types of savings of migrants in the East District of Sikkim

5.4.6.2 Amount of savings

Savings is one of the main criteria to analyze the standard of living of the people. Amount of savings by the migrants of the East district of Sikkim shows an astonishing scenario. The maximum savings of money by the sample migrants of the district is about Rs. 50000 per annum, where some of the sample migrants have no savings anywhere. It reveals a huge gap in the standard of living between two economic groups i.e. rich and poor among the migrants of the district. The average savings for the various purposes by the migrants of the district is Rs. 29147.06. The value of standard deviation of the annual amount of savings of the migrants is Rs. 51977.03, whereas Rs. 178.33 is the value of coefficient of variation. Amount of annual savings by the sample migrants ranges between Rs. 18937.80 to Rs. 39356.32 at 95% confidence level. So, it reveals from the analysis that there is a better situation in average savings compared to average monthly income of the migrants (Table 5.22 and Figure 5.19c).

Table 5.22 Amount of savings by the sample migrants of East district of Sikkim

Statistic	Amount of savings (Rs.)
Minimum	0
Maximum	500000
Mean	29147.06
SD	51977.03
CV	178.33
95 % Confidence interval	18937.80 - 39356.32

Source: Household Survey, 2018

5.4.6.3 Purpose of savings

There are different purposes for savings by the migrants of the district. Migrants save their earnings according to their necessity of livelihood. Sample respondents stated that they are saving their money mainly for future and marriage purposes. 57 numbers of the sample responded that they saved their money for future security, which is 61.29 % of the respondents. Marriage is next to sign for the savings. Marriage of daughter, sister and marriage of others and future security and LIC are occupying 2.15%, 1.08%, 3.23% and 1.08% respectively. Only 5.38% of respondents stated that they saved their money for capital grown; 7.53% of respondents saved their money for the higher education of their children. Savings of money by the migrants of the district for house construction or repairing at 2.15% and in LIC for insured of their life at 3.23 % (Figure 5.17). Savings for future security is ranges between 71.16 (upper bound frequencies) and 51.39 (lower bound frequencies) at 95% confidence interval, whereas child marriage, sister marriage and marriage along with future security and LIC investment occupying lowest and ranges between 3.17 as upper bound frequencies to 0.00 as lower bound frequencies at 95% confidence interval (Table 5.23).

Table 5.23 Purpose of savings of sample migrants in the East District of Sikkim

Purpose	N	Percentage (%)	95% confidence interval
Capital grown	5	5.38	0.79 - 9.96
Child Marriage	1	1.08	0.00 - 3.17
Daughter's Marriage	2	2.15	0.00 - 5.10
Education	7	7.53	2.16 - 12.89
Future	57	61.29	51.39 - 71.19
Future & Education	6	6.45	1.46 - 11.44
Future & Marriage	3	3.23	0.00 - 6.82
Future, LIC, Marriage	1	1.08	0.00 - 3.17
House	2	2.15	0.00 - 5.10
LIC	3	3.23	0.00 - 6.82
Marriage	5	5.38	0.79 - 9.96
Sister Marriage	1	1.08	0.00 - 3.17

Source: Household Survey, 2018

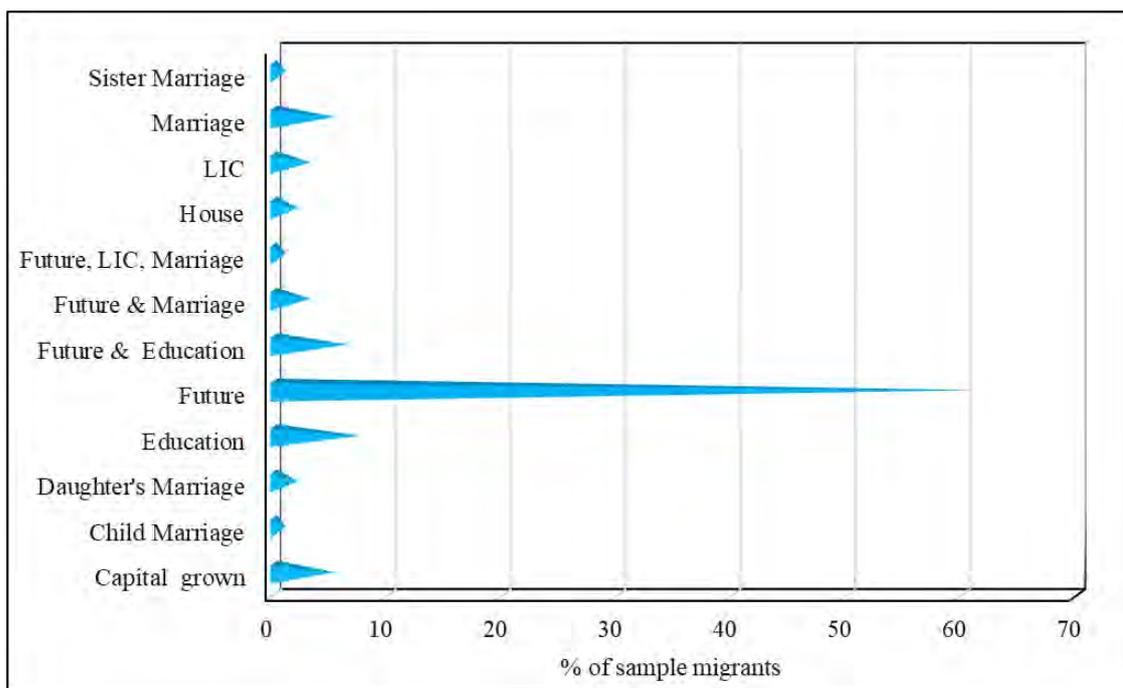


Figure 5.17 Purposes of savings of migrants in the East district of Sikkim

5.4.7 Loan status

Out of 190 numbers of respondents in the district, 144 numbers of sample respondents haven't any loan for any purposes. Which is 75.79% of the migrants. Whereas, 46 numbers of sample respondents have a loan for different purposes, which is 24.21% among the migrants in the district. It is revealed that more than third-fourth of the migrants in the district have earned quite sufficient for their livelihood (Figure 5.18). Migrants who are loan borrower is ranged between 18.12 as lower bound frequencies and 30.30 as upper bound frequencies at 95% confidence interval and migrants who do not have any loan is ranged between 69.70 (lower bound frequencies) to 81.88 (upper bound frequencies) at 95% confidence interval (Table 5.24).

Table 5.24 Loan borrower of sample migrants in the East District of Sikkim

Response	N	Percentage (%)	95% confidence interval
No	144	75.79	69.70 - 81.88
Yes	46	24.21	18.12 - 30.30

Source: Household Survey, 2018

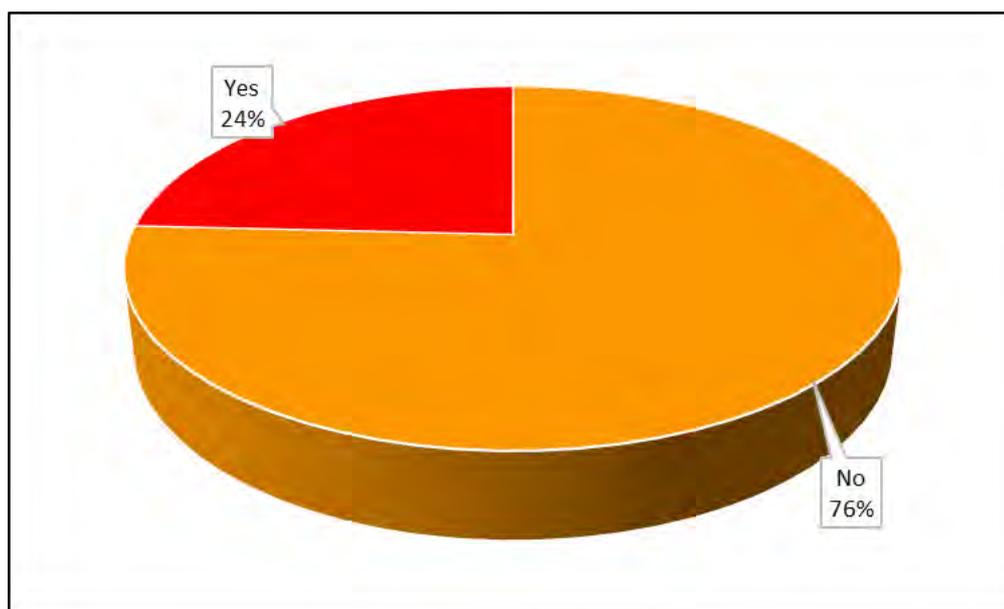


Figure 5.18 Loan borrower among migrants in the East district of Sikkim

5.4.7.1 Amount of loan

Amount of loan for the various purposes borrowed by the sample migrants of the East district of Sikkim is quite amazing. The total loan amount borrowed by the sample migrants of the district ranges between nil to Rs. 400000. The average loan amount borrowed by the migrants of the district is Rs. 76041.67. Though, maximum numbers of sample migrants are not debtors in anyways. The value of the standard deviation of the amount of loan is Rs. 91244.11 and the value of coefficient of variation is about Rs. 119.99 for the same purpose. Loan amount adopted by the sample migrants of the district ranges between Rs. 49547.14 to 102536.19 at 95% confidence level. So, it can be said that the huge numbers of migrants in the district have sustained poor standard of living due to their borrowed of the loan (Table 5.25 and Figure 5.19c).

Table 5.25 Amount of loans of sample migrants of East district of Sikkim

Statistic	Amount of loan (Rs.)
Minimum	0
Maximum	400000
Mean	76041.67
SD	91244.11
CV	119.99
95% Confidence interval	49547.14 - 102536.19

Source: Household Survey, 2018

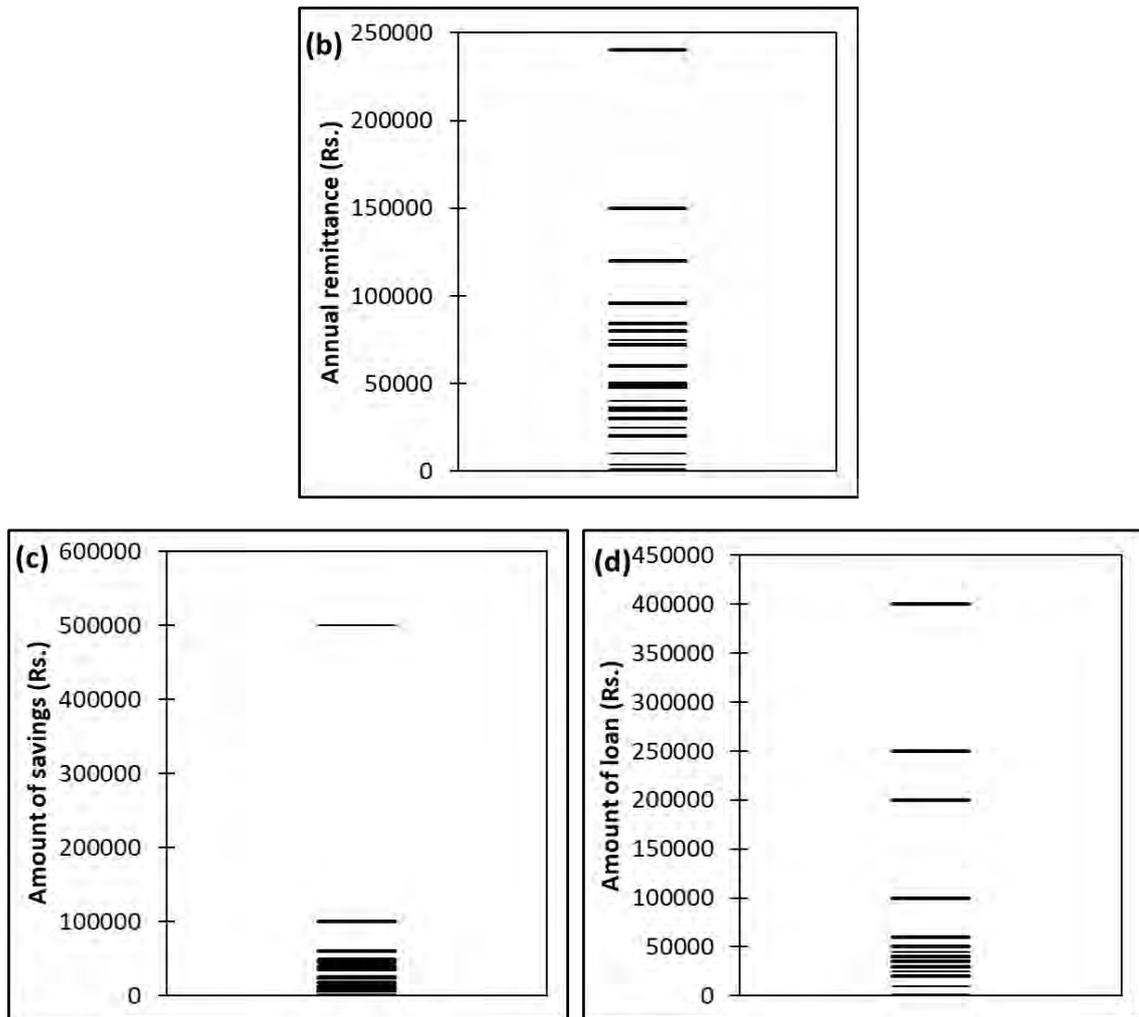


Figure 5.19 Stripplot showing Migrants’ (a) Annual remittance, (b) Amount of savings and (c) Amount of loan in the East district of Sikkim

5.4.8 Working conditions

5.4.8.1 Place of work

The workplace of migrants of the East district of Sikkim is considered rural and urban areas of the district. The workplace of migrants of the East district of Sikkim shows in Table 5.26. It is revealed that 78 respondents who are 41.05% among the migrants are working in the rural area, whereas 112 numbers of respondents which are 58.95% are working in the urban areas of the district (Figure 5.20). Table 5.26 also shows that the lower bound of the rural areas on frequencies 95% is 34.06 and the upper bound is 48.05. On the other hand, the lower bound of the urban areas on frequencies 95% is 51.95 and upper bound is 65.94. It’s found that the migrants of the East district of Sikkim have the choice to work in the urban area to earn more than the rural areas, though; most of the migrants in the district are working population.

Table 5.26 Work Place of migrants in the East district of Sikkim

Work Place	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Rural	78	41.05	0.41	34.06	48.05
Urban	112	58.95	0.59	51.95	65.94

Source: Household survey, 2018

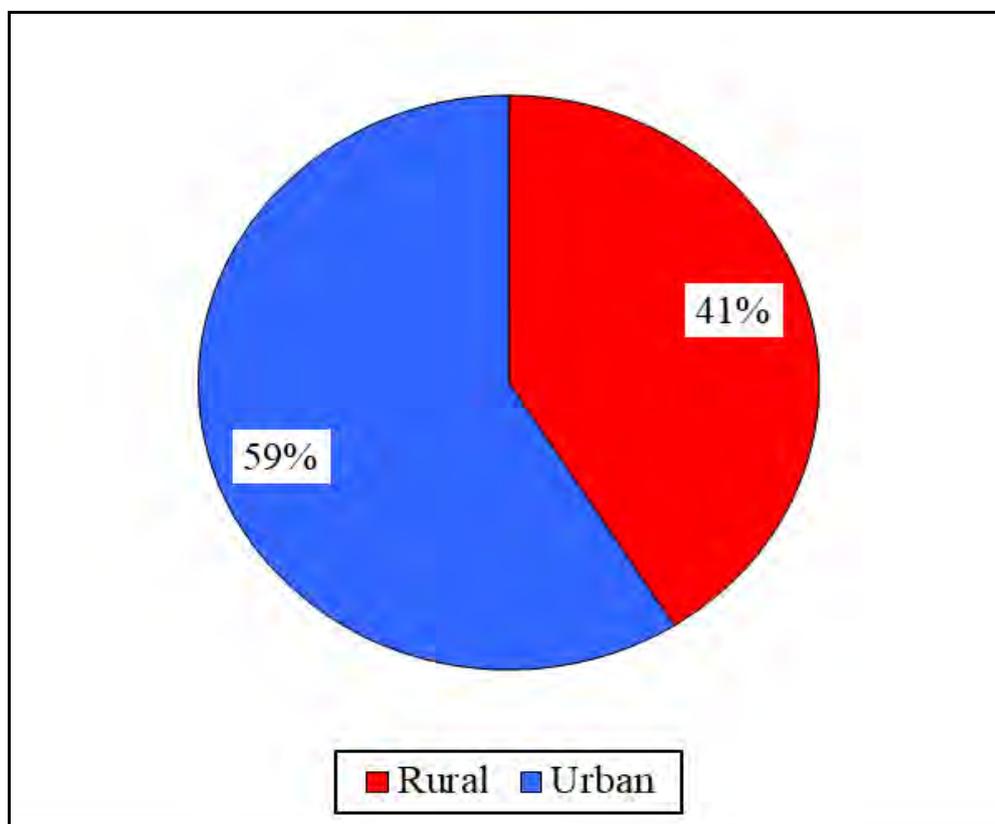


Figure 5.20 Work place of migrants in the East district of Sikkim

5.4.8.2 Working time

Working time of the workers reflects the working conditions of the workers and how they could avail the facilities provided by the commission and rules for labour force described in industrial policies of India. Work time of the sample migrants is categorised into two categories in the district. Firstly, the work time of the sample migrants per day is considered in hours and secondly, work time of the sample migrants per week is considered in number of days (Messenger et al., 2007)

Working conditions of the sample migrants of the East district of Sikkim is not so good. Average working time in a day of the migrants is 9.89 hours (Figure 5.21b),

which is little higher than the labour policy, according to labour policy of India maximum working time in a day of a worker is 8 hours. On the other hand, in a week minimum, one day is compulsory as a non-working day for the workers. But, in the East district of Sikkim, the average number of working days in a week of the sample migrants is 6.29 days, which is also little higher than the rules proposed by the labour commission of India. Working hours in a day of the migrants of the district ranges between 6 to 14 hours, where maximum working hours in a day is too much higher (Figure 5.21a). Standard deviation value of the working hours per day is 1.66, where the value of coefficient of variation is 16.83. The working day per week of the migrants in the district ranges minimum 4 day per week to maximum all the days of a week. Value of standard deviation of the working day per week of the migrants in the district is 0.57 and value of coefficient of the same is 9.06. Working hours per day of the migrants ranges between 9.66 hours to 10.13 hours per day at 95% confidence level (Table 5.27), which is much higher than standard working time of the country. On the other hand, the working day per week of the migrants in the district ranges between 6.21 days to 6.38 days per week at 95% confidence level (Table 5.27), which is also much higher than the standard working day per week provided by the labour policies of the country. So, it is clear that the migrants of the district who are working as labour force of the state haven't good working conditions and they are also compelled to work for their needs.

Table 5.27 Working time of the sample migrants of East district of Sikkim

Statistic	Works/week (day)	Works/day (hours)
Minimum	4	6
Maximum	7	14
Mean	6.29	9.89
SD	0.57	1.66
CV	9.06	16.83
95 % Confidence interval	6.21 - 6.38	9.66 - 10.13

Source: Household Survey, 2018

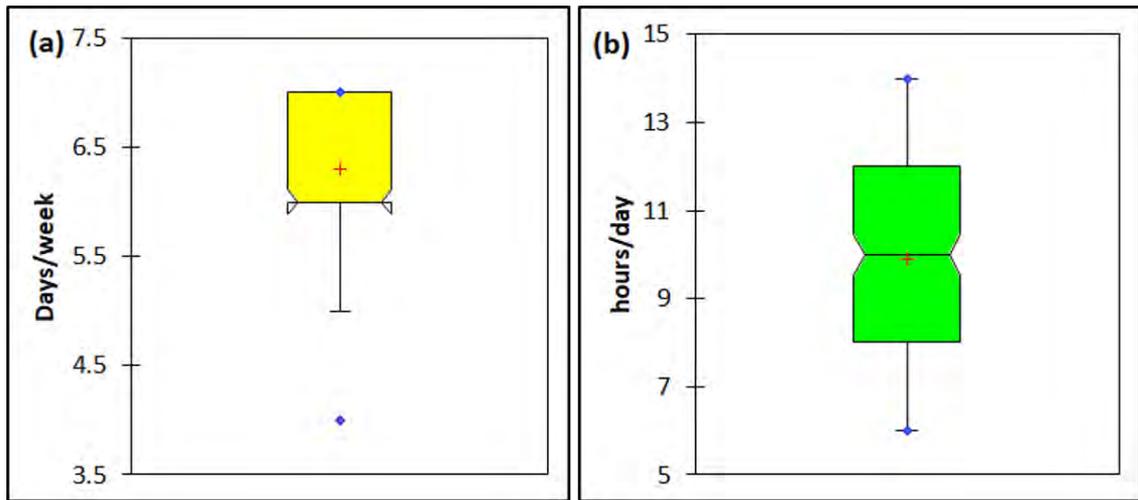


Figure 5.21 Migrants“ (a) Working days per week, (b) Working hours per day in the East district of Sikkim

5.5 Household status

5.5.1 Tenure of dwelling

Tenure of the dwelling of migrants in the East district of Sikkim is varied from place to place. There are four categories of tenure of dwelling are found, which are 1) own houses, 2) Rented houses, 3) workplaces and 4) Hostel. Among these four categories of dwelling, tenure rented houses occupied by the maximum number of 132 respondents, which is 69.47 % of the total migrants of the district. Among the migrants, 45 numbers of respondents live in the workplace, which is 23.68% of the total migrants. 10 numbers of respondents have their own houses for the living, which is 5.26% of the total migrants of the district, whereas only 3 numbers of respondents have lived the hostel, which is 1.58% of the total migrants of the district (Figure 5.22). After the analysis of Table 5.28, it's found that the maximum numbers of migrants live alone in the district, so they are unwilling to pay more money for their living. On the other hand, living in the workplace or hostel is not so hygienic or perfect for their livelihood. For this reason, maximum numbers of migrants are willing to live in the rented houses as per their standard of living. But the migrants who live with their family members and who have to earn handsome salaries are willing to live in their own houses.

Table 5.28 Tenure of dwelling of migrants in the East District of Sikkim

Tenure of Dwelling	No. of respondents	% of respondents	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)	Proportion per category
Own	10	5.26	2.09	8.44	0.05
Rented	132	69.47	62.93	76.02	0.69
Work Place	45	23.68	17.64	29.73	0.24
Hostel	3	1.58	0.00	3.35	0.02

Source: Household Survey, 2018

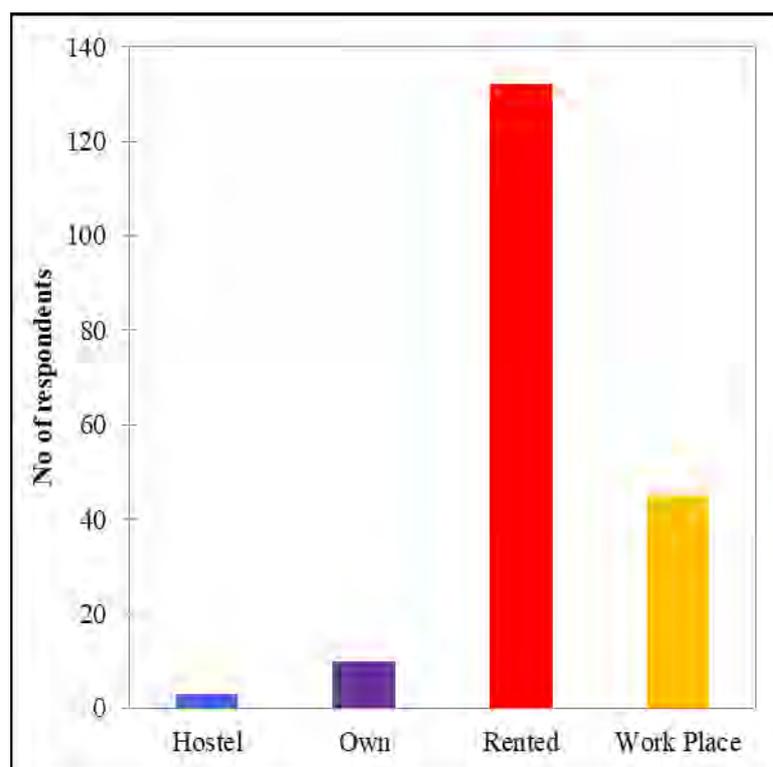


Figure 5.22 Tenure of dwelling of migrants in the East District of Sikkim

5.5.2 Housing structure

If we look at the housing structure of the migrants of the East district of Sikkim, we find out the four categories of housing structure, which are 1) Kutchha, 2) Semi pucca, 3) Pucca and 4) Wooden. The housing structure of the migrants in the district mostly is made of concrete which is remarked as pucca. Total 90 numbers of respondents reside in the pucca housing structure, which is 47.37%, whereas 63 numbers of respondents, which is 33.16% and 36 numbers of respondents, which is 18.95% reside at semi pucca and kutchha housing structure respectively (Figure 5.23). Only one respondent resides at the wooden structure, which is 0.53% among the total migrants of the district. Upper

bound on frequencies ranges between 54.47 to 1.56 at 95% confidence level and lower bound on frequencies ranges between 40.27 to 0.00 at 95% confidence level (Table 5.29).

Table 5.29 Housing structure of migrants resides in the East District of Sikkim

Housing structure	No. of respondents	% of respondents	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)	Proportion per category
Kutchha	36	18.95	13.38	24.52	0.19
Semi Pucca	63	33.16	26.46	39.85	0.33
Pucca	90	47.37	40.27	54.47	0.47
Wooden	1	0.53	0.00	1.56	0.01

Source: Household Survey, 2018

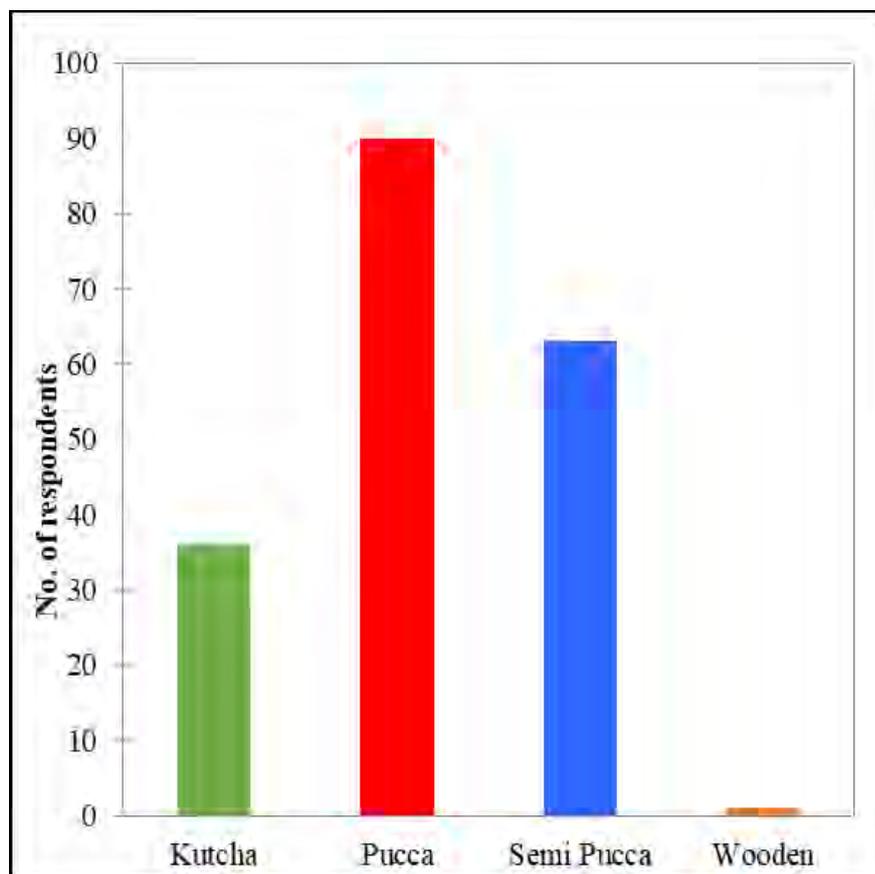


Figure 5.23 Housing structure of migrants resides in the East District of Sikkim

5.5.3 Basic facilities in the houses

5.5.3.1 Electricity

The facility of electricity is the basic component of the development in modern civilization. Today most of the areas of the country are electrified both in the rural and

urban areas and also in the different terrain. Migrants of the East district of Sikkim are enjoying the availability of electricity in their houses. Sikkim is much developed in the electricity infrastructure. 189 numbers of respondents have enjoyed the availability of electricity in their houses, which is 99.47% of the total migrants of the district, whereas, only 1 respondent doesn't enjoy the availability of electricity in their houses, which is only 0.53% among the total households of the migrants in the district (Figure 5.24). So, it can be said that the facility of electricity is in very good condition in the district. Lower bound and upper bound ranges between 0.00 to 100.00 on frequencies at 95% confidence level (Table 5.30).

5.5.3.2 Drinking water

Facilities of fresh and clean drinking water are the basic needs of the people. The availability of fresh drinking water is the fundamental right of citizens. But, due to scarcity of drinking water in the different parts of the country is a very big problem for society. Sikkim is also a state with water scarcity, especially in the pre-monsoon period. Drinking water facilities among the migrants in the East district of Sikkim is not good enough. Figure 5.24 shows that only 120 numbers of respondents have this facility, which is 63.16% of the total migrants in the district. Whereas, 70 numbers of respondents, which is 36.84% haven't availed the fresh drinking for their livelihood. In the pre-monsoon period, they have been buying the water with maximum limits for their livelihood. Drinking water facilities range between 29.98 (lower bound frequencies) to 70.02 (upper bound frequencies) at 95% confidence level (Table 5.30).

5.5.3.3 Sanitation

Sanitation is one of the most important aspects of community well-being to protect human health, extend life expectancy and secure social dignity. It's also providing benefits to the economy. Sanitation facilities among the migrants are not good enough in the district. Among the migrants, 167 numbers of respondents have proper sanitation facilities, which is 87.89%. On the other hand, 23 numbers of respondents, which are 12.11 % of the total migrants of the district do not avail the proper sanitation facilities (Figure5.24). It reveals that the lifestyle of the migrants in the district is not so good, they are living in some of the unhygienic environments. This situation pushes them into different health problems and also prejudices their social dignity. Sanitation facilities ranged between 7.47 (lower bound frequencies) to 92.53 (upper bound frequencies) at 95% confidence level (Table 5.30).



Plate 5.2 Drinking water facilities at a. Rongpo b. Paykong c. Singtham d. Ravangla e. Jorethang f. Gangtok



Plate 5.3 Sanitation facilities at a. Singtham b. Paykong c. Ravangla d. Sambuk e. Gangtok

Table 5.30 Basic facilities in the house of sample dwellers in the East district of Sikkim

Facilities	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Electricity	No	1	0.53	0.00	1.56
	Yes	189	99.47	98.44	100.00
Drinking water	No	70	36.84	29.98	43.70
	Yes	120	63.16	56.30	70.02
Sanitation	No	23	12.11	7.47	16.74
	Yes	167	87.89	83.26	92.53

Source: Household Survey, 2018

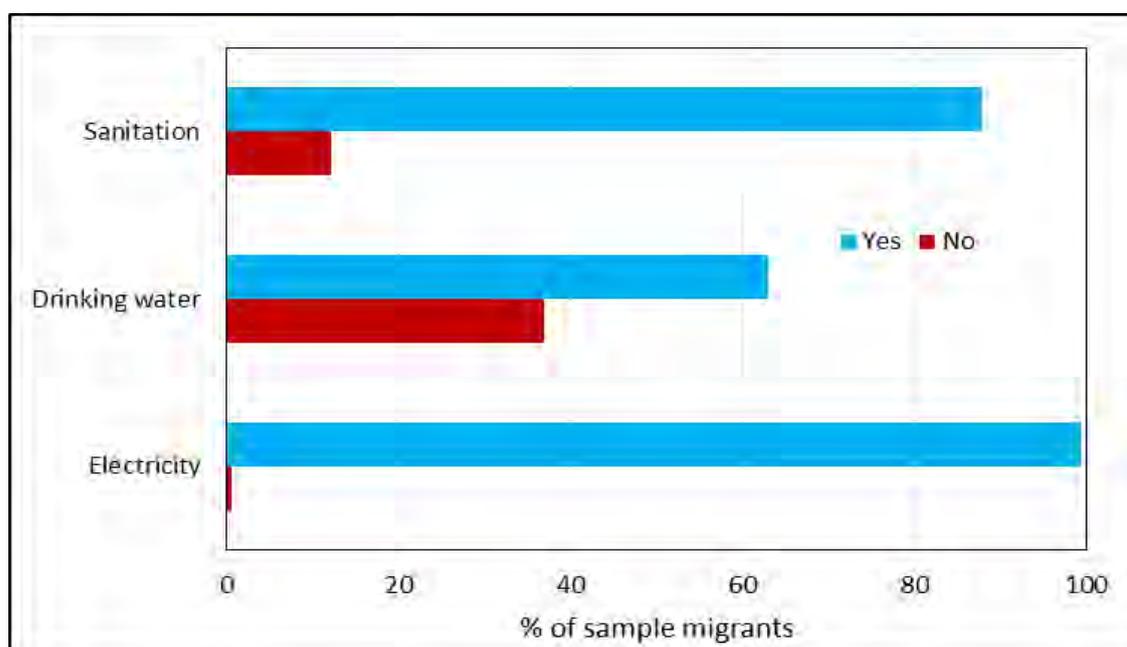


Figure 5.24 Basic facilities in the house of sample migrants of East district of Sikkim

5.5.4 Basic facilities in the localities

Basic facilities in the localities refer to the community facilities available for the residence of the area. The main basic community facilities are 1) Solid Waste, 2) Garbage and 3) Sewerage. These facilities are most needed for all the people who live in any area or localities. These facilities are basic needs for the localities.



Plate 5.4 Sewerage and garbage facilities at a. Gangtok b. Singtham c. Jorethang d. Sambuk e. paykong f. Rongpo

Table 5.31 Basic facilities in the localities of sample dwellers in the East district of Sikkim

Facilities	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Solid waste	No	115	60.53	53.58	67.48
	Yes	75	39.47	32.52	46.42
Garbage	No	108	56.84	49.80	63.88
	Yes	82	43.16	36.12	50.20
Sewerage	No	121	63.68	56.85	70.52
	Yes	69	36.32	29.48	43.15

Source: Household Survey, 2018

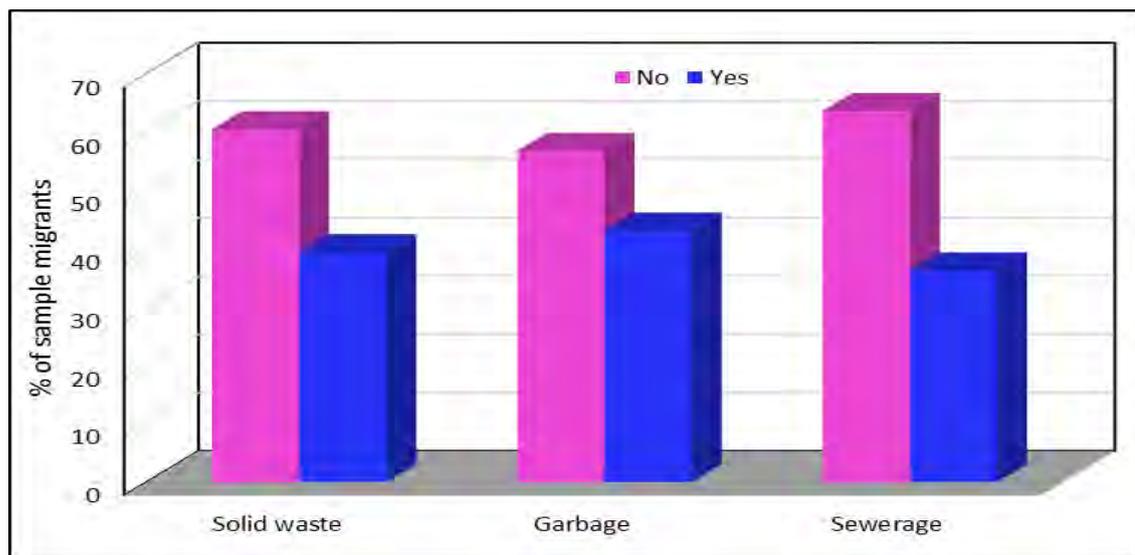


Figure 5.25 Basic facilities in the localities of migrants in the East district of Sikkim

5.5.4.1 Solid waste

Solid waste means the unwanted or useless solid materials generated from human activities in residential, industrial or commercial areas. These wastes have to need dumping or decomposed properly for the better livelihood for the human being or also for the control of the degradation of the environment of the community. It's the responsibility of local administrative bodies or authority to wash out of these wastes.

Among the migrants of the East district of Sikkim, solid waste management facilities are very poor. Only 75 numbers of respondents, which is 39.47% of the total migrants of the district having this facility. But, 115 numbers of migrants, which are 60.53% of the total migrants in the district, are unable to enjoy this facility. It reveals that the migrants of the district are living in an unhygienic environment, which affects

their health directly or indirectly. The solid waste facility ranges between 32.52 to 67.48 as lower bound frequencies and upper bound frequencies at 95% confidence interval (Table 5.31).

5.5.4.2 Garbage

Garbage is the unwanted material discarded by humans, usually due to a perceived lack of utility. The term generally does not encompass bodily waste products, purely liquid or gaseous wastes. This waste needs to be collected from society regularly and disposed of properly. This waste is very harmful to the environment and health too.

Garbage waste facilities are not so hopeful in the study area. Among the migrants of the East district of Sikkim, there are only 82 numbers of respondents who have enjoyed this facility in the locality, which is only 43.16% of the total migrants of the district (Figure 5.25). On the other hand, 108 numbers of respondents are not having this facility in their society, which is 56.84% among the total migrants of the district. So, it can be said that the study area is not so appreciable in this regard. Garbage facility of the respondents in the area is ranged between 36.12 to 63.88 as lower bound and upper bound respectively on frequencies at 95% confidence interval (Table 5.31).

5.5.4.3 Sewerage

Sewerage is the infrastructure that conveys sewage using sewers. The network for collecting wastewater via pipes, conduits and ancillary works from its point of origin to treatment plants before discharge back into the environment. The Sewage system in any locality plays an important role in our lifestyle to protect both our health and environment.

In the study area, it is found that the sewerage system is very poor in conditions. 121 numbers of respondents, which are 63.68% of the total migrants in the district haven't these basic facilities in their localities. Only 69 numbers of respondents, which is 36.32% of the total migrants of the district get this basic facility in their livelihood (Figure 5.25). Mountainous terrain, along with a low rate of connectivity is the basic problem for constructing the proper sewerage system in the area. It is found that the poor sewerage network system in the district is threatening the health and environment for the community. Sewerage facilities among the migrants of the district have upper

bound frequencies of 70.52 and lower bound frequencies of 29.48 at 95% confidence interval (Table 5.31).

5.5.5 Household amenities

According to Cambridge dictionary amenities means things considered to be necessary to live comfortably. Households' amenities mean something present in the houses intended to make life more pleasant or comfortable for the family members. The availability of the households' amenities in the house is a better understanding of the standard of living and the economic development of society.

All the common types of amenities are present in the houses of migrants in the district. 31.05% of the migrants enjoying television in their houses, 10.05% migrants of the district having two-wheelers for their local transportation, 12.63% of the migrants having a food processor, 8.82% migrants use washing machine, 6.32% of the total migrants use computer for their office work or children education, 16.84% of the migrants enjoying the facilities of geyser, 95.79% of total migrants of the district use mobile as their communication and leisureliness, 13.68% of the migrants having inverter in their houses for the livelihood (Figure 5.26). After analysing Table 5.32, it is found that maximum numbers of migrants have mobile, which is used for different purposes, followed by television, which is the basic amenities in the houses in present-day civilization. But, other types of amenities are not so frequently used by the migrants of the east district of Sikkim. It reveals that the economic conditions of the migrants in the district are not so appreciable. They have not enough money in their hand after expanse by him for their livelihood and remittance to the family.

Table 5.32 Household amenities of sample dwellers in the East district of Sikkim

Assets	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Television	No	131	68.95	62.37	75.53
	Yes	59	31.05	24.47	37.63
Car/Bike	No	170	89.95	85.66	94.23
	Yes	19	10.05	5.77	14.34
Food processor	No	166	87.37	82.64	92.09
	Yes	24	12.63	7.91	17.36
Washing machine	No	174	91.58	87.63	95.53
	Yes	16	8.42	4.47	12.37
Computer	No	178	93.68	90.23	97.14

Assets	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
	Yes	12	6.32	2.86	9.77
Geyser	No	158	83.16	77.84	88.48
	Yes	32	16.84	11.52	22.16
Mobile	No	8	4.21	1.35	7.07
	Yes	182	95.79	92.93	98.65
Inverter	No	164	86.32	81.43	91.20
	Yes	26	13.68	8.80	18.57

Source: Household Survey, 2018

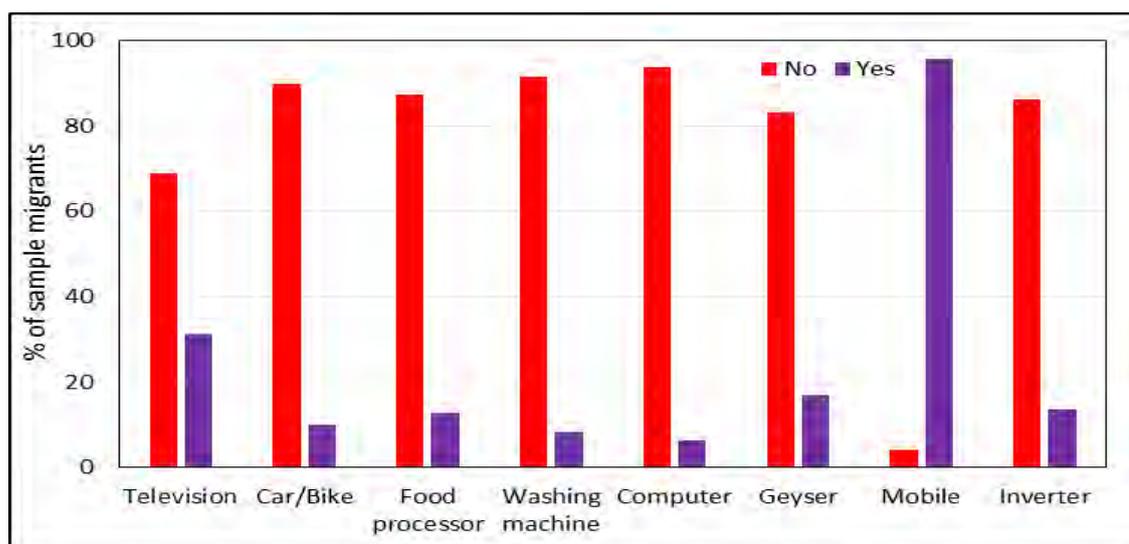


Figure 5.26 Household amenities of migrants in the East district of Sikkim

5.6 Socio-economic index (SEI)

In this chapter, the result of the SEI calculation of the migrants of the East district of Sikkim is presented and discussed. Along with this, an analysis of the estimated results of factors of socio-economic status of the migrants in the district is discussed in detail (Appendix B.3).

5.6.1 Factors influencing Socio-Economic Index

To find out the socio-economic status of the migrants of the East district of Sikkim SEI is calculated by using a self-developed index, which is mentioned earlier. The SEI is based on two indices, which are Social Index and Economic Index. The social index is calculated with the three variables: Health Index, Education Index and Demographic Index. On the other hand, Economic Index is the combination of Income Index, savings of money and loan or borrows of money by the migrants of the district.

5.6.1.1 Health Index (HI)

Before analysing the SEI value of the migrants of the district it is necessary to discuss the variables of SEI. By which, the correlation between the different variables has been revealed in detail. The main components of SEI are the Social Index and Economic Index. The first variable of Social Index is Health Index. The Health Index value ranges between $_{-1}$ to $_{-0}$. $_{-1}$ considers the highest health facilities occupied by the migrants and $_{-0}$ means the lowest occupying of health facilities. The mean value of the Health Index among the migrants of the East district of Sikkim is 0.50. HI value higher than the mean value is in better health conditions relative to the migrants with HI lower than the mean HI. According to the Health Index, 52.63% migrants of the district are not enjoying better health facilities, whereas, 47.37% migrants of the district are enjoying much better health facilities (Appendix B.4a). From this analysis, it is concluded that migrants of the district are little more downward regarding the health-related facilities in the study area.

5.6.1.2 Education Index (EDI)

Another variable of Social Index is the Education Index. Education Index mainly depends on the total number of years spent in school by the respondents. Years spent in school means the years of schooling by the respondents. Though, any respondent has no formal education or did not go to school in any manner scored 0, whereas, maximum years of schooling is occupied by those respondents who have a professional educational qualification, which is 16. On this basis, the Education Index has been constructed by the self-developed index. The value of Education Index ranges between $_{-0}$ to $_{-1}$. $_{-0}$ means no formal education or $_{-0}$ year of schooling and $_{-1}$ means maximum years of schooling or highly educated by the migrants of the district. Mean value of the Education Index is 0.52. 73.68% among the migrants have higher education, which is more than average range; on the other hand, 26.32% migrants have little more education or no formal education, because they occupy the index value below the mean value (Appendix B.4b). So, it can be said that the educational qualification among the migrants of the district is much better in position.

5.6.1.3 Demographic Index (DI)

The third variable of the Social Index is Demographic Index. In this part, the demographic index is mainly based on the size of family or number of family members in an individual household of the respondents. Maximum family size among the

migrants of the district is 9 persons and lowest family size among the migrants of the district is 1 person in an individual household. On the basis of this, a self-developed index is constructed, which ranges between 0 to 0.73 . 0 means minimum family size and 0.73 indicates maximum family size among the migrant respondents of the district. Minimum index value indicates a better demographic structure of the respondents and maximum index indicates poor demographic structure of the respondents. Mean value of the Demographic Index of the migrants in the district is 0.07 . 83.68% migrant respondents belonging to below the mean value, whereas 16.32% are belonging to above the mean value (Appendix B.4c). It indicates that the demographic structure of the migrants of the district is very unexpected or underprivileged in conditions.

5.6.1.4 Social Index (SI)

Social Index is constructed with the combination of Health Index, Education Index and Demographic Index. The methodology of the preparing Social Index has already been discussed. Social Index of the migrants of the district shows the social status of the respondents. Value of the Social Index of the district ranges between 0 to 0.78 . A higher value of Social Index indicates a better social status of the respondents, whereas a lower value of Social Index indicates unsuitable social status of the respondents. The mean value of the Social Index of the migrants of the East district is 0.36 . Respondents have the Social Index value higher than mean value implies their better social status, which is 43.16%. On the other hand, 56.84% migrants are having the Social Index value below the mean value (Appendix B.4d), which exhibit adverse social status in the district.

5.6.1.5 Income Index (INI)

Economic Index mainly based on Income Index along with savings and loan variables. Income Index is prepared with the help of monthly income of the migrants of the district. Highest monthly income of the respondents in the district is recorded Rs. 70000/-, whereas lowest monthly income among the respondents in the district is Rs. 2000/-. Based on this, a self-developed Income Index is constructed, which reveals the economic conditions of the migrants of the East district of Sikkim. In the East district, the value of the Income Index ranges between 0 to 0.69 . According to the Income Index, higher value indicates better economic status and lower value indicates poor economic conditions of the migrants in the district. The mean value of the Income

Index is ± 0.13 . 8.42% among the migrants of the district considered average economic conditions; they have the same mean value regarding Income Index. 68.95% migrants have the Income Index value lower than mean value, which reveals the poor economic conditions of the migrants of the district. On the other hand, only 22.63% respondents are having very good economic status, which has the Income Index value more than mean value (Appendix B.4e). After the analysis of the Income Index, it is found that the economic conditions of the migrants in the East district of Sikkim are very unlikely.

5.6.1.6 Economic Index (EI)

Economic Index is a self-developed index constructed with the component of Income index along with savings and borrows of the respondents of the district. To know the economic status of the migrants of the district Economic Index is an undoubted procedure, which reveals the proper economic conditions of the respondents in the district. The value of the Economic Index ranges between ± 0.03 to ± 0.90 . A higher value of Economic Index indicates better economic status of the migrants and lower value of Economic Index indicates infirm economic conditions of the migrants of the district. The mean value of the Economic Index is ± 0.46 . 1.05% respondents of the district belong to the Economic Index value same as the mean Economic Index value. 67.37% respondents are having the Economic Index value lower than mean value and 31.58% respondents are having the Economic Index value more than the mean value (Appendix B.4f), which indicates a huge number migrants have not enjoyed prosperous economic conditions in the district. So it is found that the economic status of the migrants of the East district of Sikkim is facing some economic problems regarding their monthly income, necessity of savings and unavoidable circumstances to take loan.

5.6.1.7 Socio-Economic Index (SEI)

Socio-economic Index (SEI) is considered as a dependent variable, which is prepared with two different independent variables namely, quantitative variables and qualitative variables. Quantitative variables including Age, Monthly income, Working days per week, Working hours per day and savings. On the other hand, Sex, Workplace, Education level, Occupation and Employment status are considered as qualitative variables.

Socio-economic Index (SEI) is a self-developed index based on the Social Index and Economic Index. SEI reveals the socio-economic status of the migrants of the East district of Sikkim. SEI of the respondents of the district is categorized into three-levels,

which are High level, Medium level and Low level. High level of SEI is score more than ≥ 0.584 , Medium level of SEI ranges between ≥ 0.584 to ≥ 0.347 and Low level of SEI is scored below the ≥ 0.347 . 71 number of respondents, which is 37.37% among the total respondents of the district are enjoying low-level socio-economic status, whereas 89 number of respondents, which is 46.84% of the total respondents are belonging to medium level of socio-economic status and 30 number of respondents, which is only 15.79% of the total respondents are enjoying admirable socio-economic status (Table 5.33). Maximum numbers of migrants in the district are belonging to the medium to low level of socio-economic conditions for their livelihood. So, it is revealed that the socio-economic status of the migrants of the East district of Sikkim is in an unprivileged situation.

Table 5.33 Level of Socio-Economic Index (SEI) of East District

Level	SEI	Number	Percentage
Low	< 0.347	71	37.37
Medium	$0.347 - 0.584$	89	46.84
High	> 0.584	30	15.79

5.7 Socio-Economic conditions of in-migrants in the South district of Sikkim

5.7.1 Demographic Profile of sample migrants

The demographic profile of the migrants of South district of Sikkim deals with the age and sex structure along with religion composition, caste composition, marital status, mother tongue, birthplace, types and size of the family. Rather these, demography of the migrants of the district deals with many economic problems, e.g. employment status and income conditions of the migrants, living standard (including housing structure, housing conditions, basic facilities) and also occupational structure.

5.7.1.1 Age structure

The age structure of respondents in the South district of Sikkim (Table 5.34) shows that more than 55% of respondents are belonging to the age group between 20 to 29 years. 21.58% respondents belong to the age group of 20 to 24 years and 28.67% respondents belong to the age group of 25 to 29 years, which is highest in age structure. The lowest number of respondents are found in the age group above 60 years, which is only 0.67%. All other age groups have below 10% respondents. It revealed that respondents in the South district belong to the young age group which indicates respondents of the district are mainly in-migrated to the district due to economic activities.

Table 5.34 Age structure of sample in-migrants population in the South district of Sikkim

Age group	Number	%
15-19	16	10.67
20-24	41	27.33
25-29	43	28.67
30-34	13	8.67
35-39	12	8.00
40-44	8	5.33
45-49	11	7.33
50-54	3	2.00
55-59	2	1.33
> 60	1	0.67
Total	150	100

Source: Household Survey, 2018

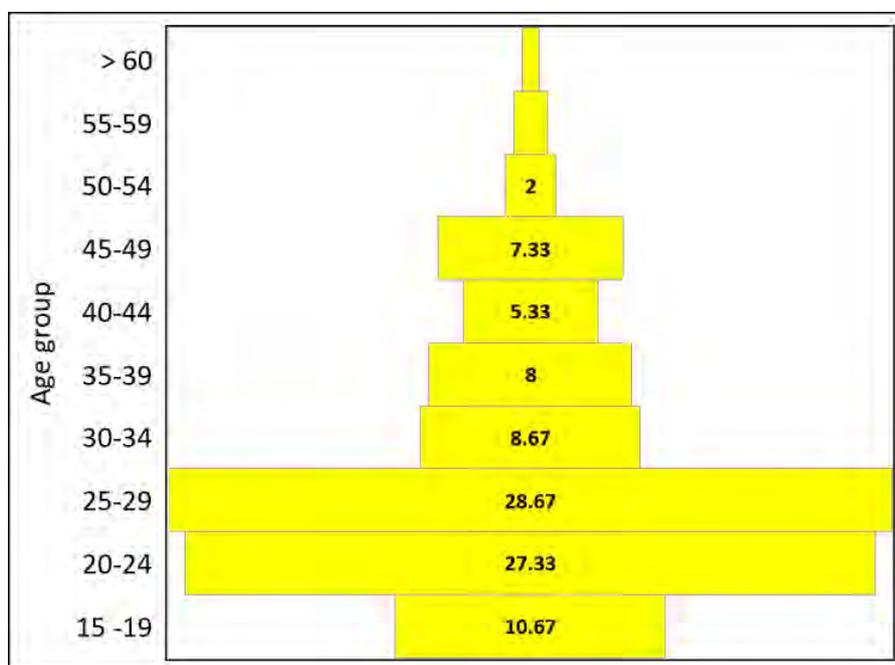


Figure 5.27 Age structure of respondents in the South district of Sikkim

5.7.1.2 Religion

Religion is occupying an important role in demographic analysis. Demographic behaviour influences marriage, migration, fertility etc. social customs, minimum age of marriage, separation custom, child marriage, widow re-marriage, inter-caste marriage etc. depends on the religious affiliation of the persons to his/her societal behaviour.

After the analysis of Table 5.35, it reveals that there are three major groups of religious practices found among the migrants of the South district of Sikkim, which are 1) Muslim, 2) Hindu and 3) Christian. Religious practices among the migrants Muslims occupy the highest proportion, followed by Hindu and Christian. 78 numbers of respondents are Muslim, which is 52% of the total migrants of the district. Whereas 65 numbers of respondents are Hindu as their religious belief, this is 43.3% among the migrants of the district. On the other hand, only 7 numbers of respondents are Christian, which only occupies 4.67% of the total migrants in the district (Figure 5.28). Highest lower bound on frequencies at 95% confidence interval is 44.00 for Muslim community and lowest 1.29 for Christian community. Whereas highest upper bound on frequencies at 95% confidence interval is 60.00 or Muslim community and lowest is 8.04 for Christian community.

Table 5.35 Religious composition of migrants in the South district of Sikkim

Religion	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Christian	7	4.67	0.05	1.29	8.04
Hindu	65	43.33	0.43	35.40	51.26
Muslim	78	52.00	0.52	44.00	60.00

Source: Household Survey, 2018

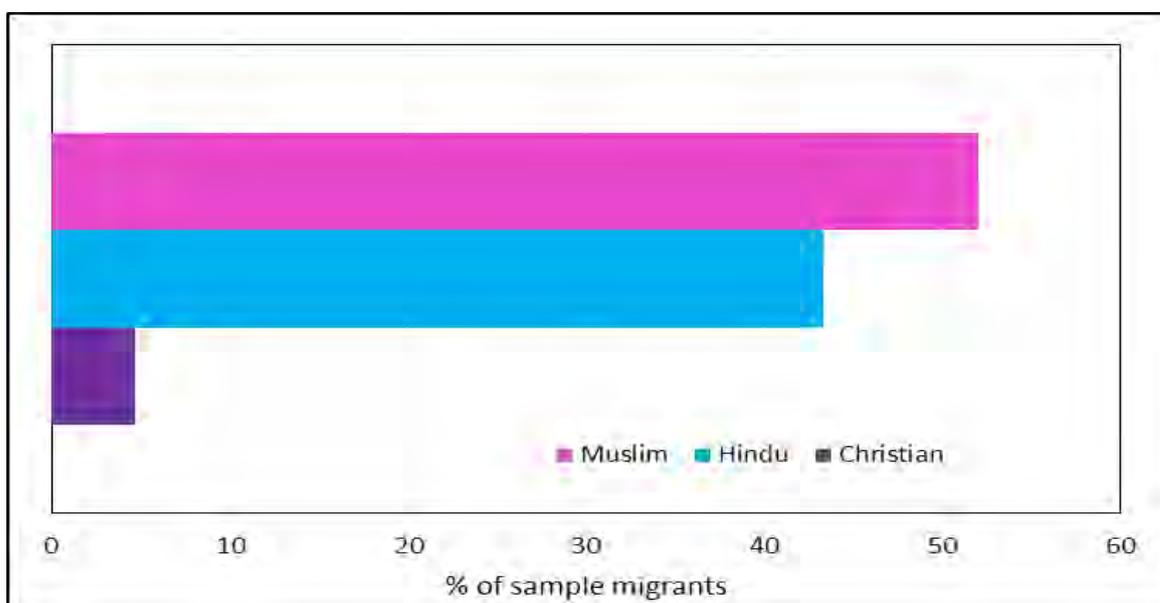


Figure 5.28 Religious composition of migrants in the South district of Sikkim

5.7.1.3 Caste

Caste composition of the migrants in the South district of Sikkim shows (Table 5.36) that there are five categories of the caste system in India according to Indian Constitution, which is 1) Unreserved, 2) Other backward class for minorities (OBC-A), 3) Other backward class for other than minorities (OBC-B) Schedule Caste (SC) and Schedule Tribe (ST). Among the migrants of the district, unreserved categories were found highest in percentage, followed by OBC-A, OBC-B and lastly, SC and ST which occupied the same proportion. 57 numbers of respondents are falling in unreserved categories, which is 38% of the total migrants in the district. 53 numbers of respondents are in OBC-A categories, which is 35.33% in the total migrants in the district. Whereas, 16 numbers of respondents are in OBC-B categories, which is 10.67% among the total migrants of the district. Only 12 numbers of respondents are both for SC and ST each, which occupy only 8% of the total migrants in the district (Figure 5.29). It reveals that in the district there is a maximum number of migrants who are Muslims and high-class Hindus as their ethnicity. OBC category among non-minority population and SC and ST population is not migrated to the district.

Table 5.36 Caste composition of migrants in the South district of Sikkim

Caste	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Gen	57	38.00	0.38	30.23	45.77
OBC-A	53	35.33	0.35	27.68	42.98
OBC-B	16	10.67	0.11	5.73	15.61
SC	12	8.00	0.08	3.66	12.34
ST	12	8.00	0.08	3.66	12.34

Source: Household Survey, 2018

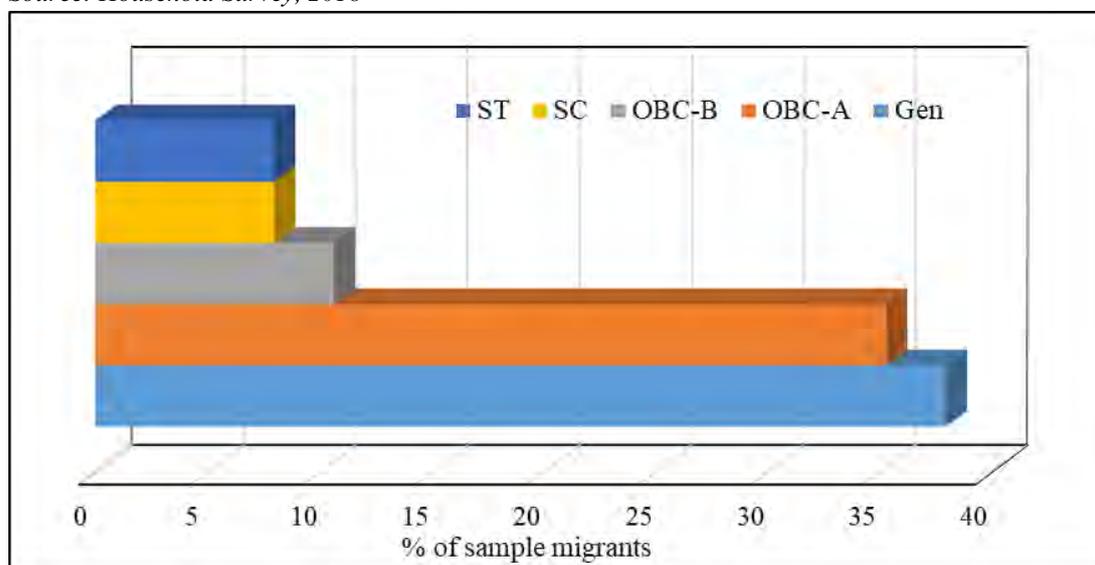


Figure 5.29 Caste composition of migrants in the South district of Sikkim

5.7.1.4 Mother tongue

Migrants of the district have come from different parts of the country along with different cultural areas. Migrants of the district have spoken different types of language. There are 9 languages have been spoken by the migrants of the district, which are 1) Arabi, 2) Bengali, 3) Bhojpuri, 4) Hindi, 5) Nepali, 6) Oraon, 7) Rajasthani, 8) Rajbanshi and 9) Suryapuri. Among these languages 3 languages are the regional language of India, which are Bengali, Hindi and Rajasthani 4 languages are local languages, which are Bhojpuri, Oraon, Rajbanshi and Suryapuri and 2 languages are international languages, which are Arabi and Nepali. Leading mother tongue spoken by the migrants of the district is Bengali. 88 respondents of the district speak Bengali as their mother tongue, which is 58.67%. Second largest mother tongue among the migrants of the district is Bhojpuri, which is spoken by the 32 number of respondents, which is 21.33%. Beyond these two languages Hindi is spoken by the 10 respondents, which is 6.67% of the total migrants of the district. 7 number of respondents each have Oraon and Suryapuri as their mother tongue, which is 4.67% of the total migrants of the district. Rajasthani and Rajbanshi languages are spoken by the 1.33% of the total migrants in the district as their mother tongue, whereas Arabi and Nepali languages are spoken by the only 0.67% of the total migrants of the district as their mother tongue (Figure 5.30). Bengali language has the highest upper and lower bound on frequencies at 95% confidence interval, which is 66.55 and 50.79 respectively. Arabi and Nepali languages have both lowest upper and lower bound on frequencies at 95% confidence interval, which is 1.97 and 0.00 respectively for both the languages (Table 5.37).

Table 5.37 Mother tongue of sample migrants in the South District of Sikkim

Language	No. of respondents	Percentage (%)	95% Confidence of interval
Arabi	1	0.67	0.00-1.97
Bengali	88	58.67	50.79-66.55
Bhojpuri	32	21.33	14.78-27.89
Hindi	10	6.67	2.67-10.66
Nepali	1	0.67	0.00-1.97
Orao	7	4.67	1.29-8.04
Rajasthani	2	1.33	0.00-3.17
Rajbanshi	2	1.33	0.00-3.17
Suruapuri	7	4.67	1.29-8.04

Source: Household Survey, 2018

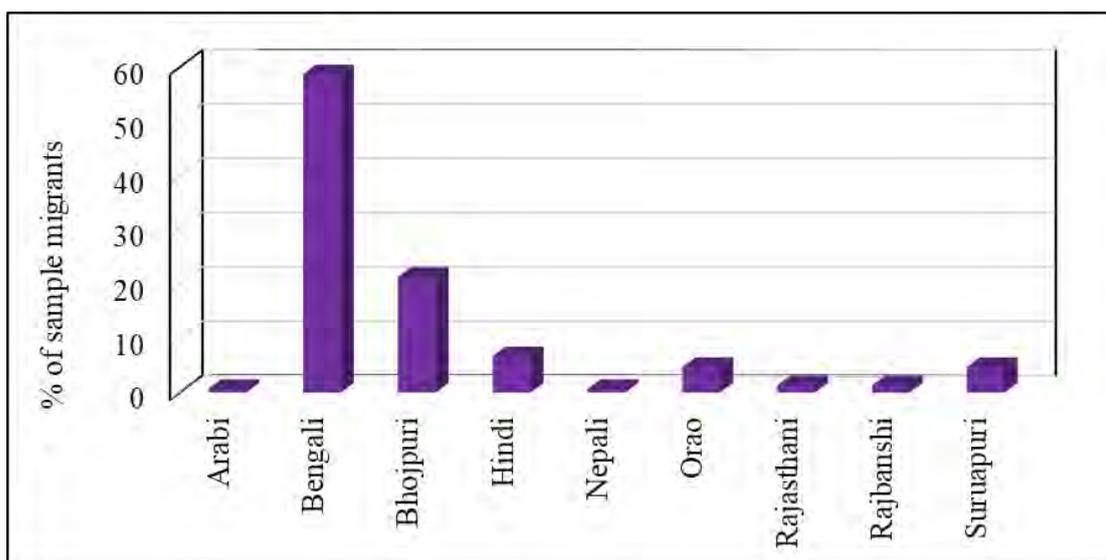


Figure 5.30 Mother tongue of migrants in the South district of Sikkim

5.7.1.5 Marital status

Marital status among the migrants of the South district of Sikkim are categorised into three categories, which are 1) Married, 2) Unmarried and 3) Widow. There is no divorce among the migrants of the South district of Sikkim. 86 number of respondents are unmarried, which is 57.33% of the total migrants of the district, 63 number of the respondents are married, which is 42% of the total migrants of the district. Whereas only 1 respondent is widow, which is only 0.67% among the migrants of the district (Figure 5.31). After the analysis of Table 5.41 it reveals that maximum number of respondents are unmarried, which shows the young age group are mainly migrated in the district. So, the working capacity among the migrants of the district is reached upto satisfactory level. There are all the categories of marital status such as married, unmarried and widow ranges between 49.00 to 34.10; 65.25 to 49.42 and 1.97 to 0.00 as upper bound and lower bound frequencies at 95% confidence interval respectively (Table 5.38).

Table 5.38 Marital status of sample migrants in the South District of Sikkim

Marital status	No. of respondents	Percentage (%)	95% Confidence of interval
Married	63	42.00	34.10-49.90
Unmarried	86	57.33	49.42-65.25
Widow	1	0.67	0.00-1.97

Source: Household Survey, 2018

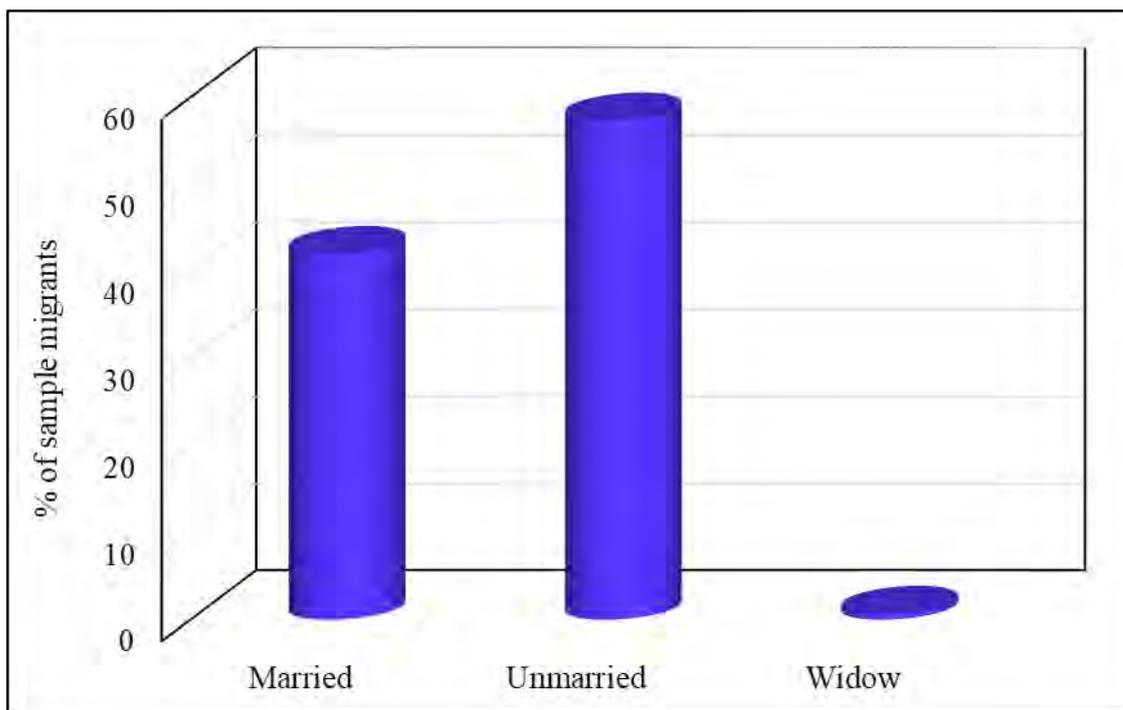


Figure 5.31 Marital status of migrants in the South district of Sikkim

5.7.1.6 Place of birth

Place of birth refers to the place of an individual where he or she was born. Migrants of the South district of Sikkim have different places of birth or where they came from to the district. From Table 5.39, it reveals that there are four numbers of place of birth, from where the migrants came to the district, these are 1) Bihar, 2) Rajasthan, 3) Uttar Pradesh and 4) West Bengal. Among these four places of birth of migrants of the district, West Bengal occupies the leading position. 106 number of respondents were born in different parts of West Bengal, which is 70.67% of the total migrants of the South district of Sikkim. After West Bengal, Bihar occupies the second position in relation to the place of birth of migrants of the district. 28 number of respondents were born in different areas of Bihar, which is 18.67% of the total migrants of the district. These two districts occupy more than 89% of the total migrants of the district. Others two states of India occupy very little percentage of place of birth of migrants of the district. 9 number of respondents were born in different areas of Rajasthan and 7 number of respondents were born in different parts of Uttar Pradesh, which are 6% and 4.67% of the total migrants of the South district of Sikkim respectively (Figure 5.32). So, it can be said that the migrants of the South district of Sikkim were born or came from the neighbouring states of Sikkim. Upper bound lower bound is highest for West

Bengal and lowest for Rajasthan on frequencies at 95% confidence interval, which is 77.95 to 63.38 and 9.80 to 2.20 respectively (Table 5.39)

Table 5.39 Place of birth of sample migrants in the South District of Sikkim

Place of Birth	No. of respondents	Percentage (%)	95% Confidence of interval
Bihar	28	18.67	12.43-24.90
Rajasthan	9	6.00	2.20-9.80
Uttar Pradesh	7	4.67	1.29-8.04
West Bengal	106	70.67	63.38-77.95

Source: Household Survey, 2018

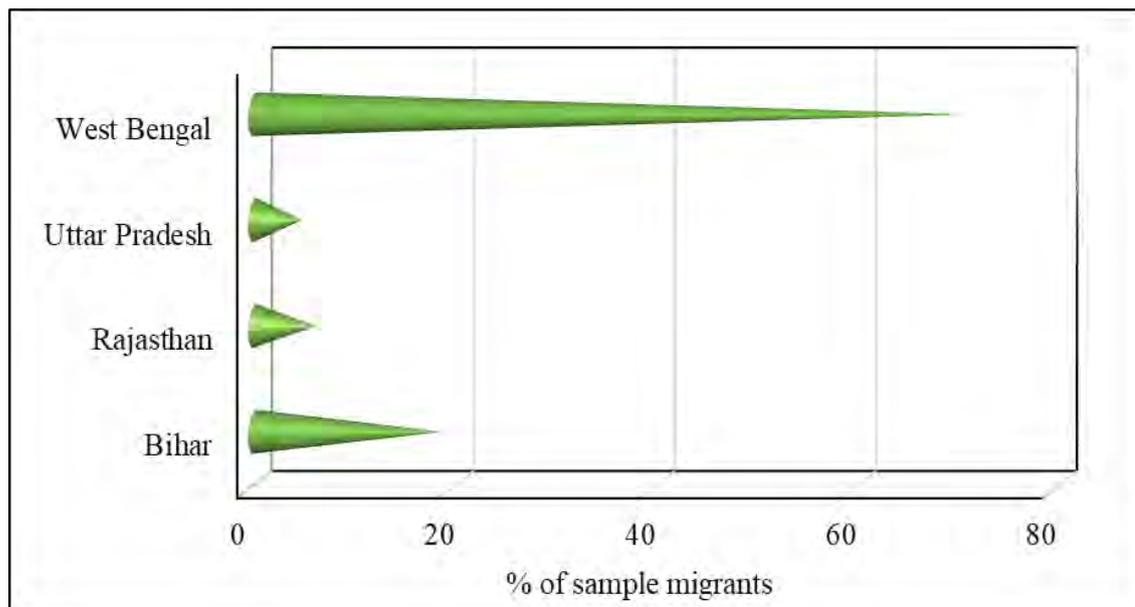


Figure 5.32 Place of birth of migrants in the South district of Sikkim

5.7.1.7 Types of the family

There are different types of family in the World as per anthropological Science or Sociology. But, according to Table 5.40 there are only two types of families found among the migrants of the South district of Sikkim, which are 1) Joint and 2) Nuclear. Joint family refers to the families which are composed with the set of siblings, their spouses and their dependent children. Whereas, nuclear family means the married couples with their dependent children live together. 128 number of respondents live as a nuclear family in the district, which is 85.33% of the total migrants of the South district of Sikkim. Whereas, only 22 numbers of respondents live in joint families, which is only 14.67% of the total migrants of the district (Figure 5.33). The joint family ranges between 20.33 (upper bound) to 9.01 (Lower bound) and nuclear family ranges between 90.99 (upper bound) to 79.67 (lower bound) on frequencies at 95% confidence

interval (Table 5.40). The migrants of the district have come to the district mainly for the economic purpose. For this reason, they have not enough economic background to provide their family together. Costly and laborious lifestyle in the mountainous environment along with unsatisfactory earning maximum migrants have lived without their families.

Table 5.40 Family type of sample migrants in the South District of Sikkim

Family type	No. of respondents	Percentage (%)	95% Confidence of interval
Joint	22	14.67	9.01-20.33
Nuclear	128	85.33	79.67-90.99

Source: Household Survey, 2018

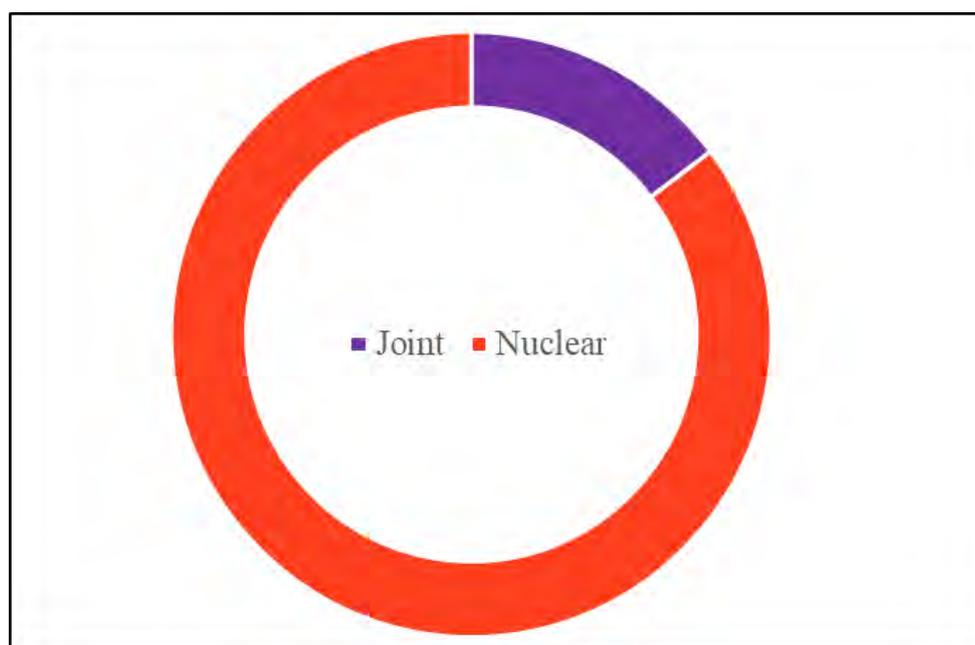


Figure 5.33 Family types of migrants in the South district of Sikkim

5.7.1.8 Family size

Family size refers to the number of family members living together in a single house. Among the migrants of the South district of Sikkim, there are three types of family size found, which are 1) Small, 2) Medium and 3) Large. Small family size refers to the family having 1 or 2 family members in an individual family. Medium family size refers to the 3 or 4 number of family members who live together in a family. Whereas, large family size means the number of family members in a family are more than 4. 128 number of respondents have small family size, which is 85.3% of the total migrants of the South district of Sikkim; 19 number of respondents have large family size, which is

12.67% of the total migrants of the district. Whereas, only 3 numbers of respondents having a medium size of family, which is only 2% of the total migrants of the district (Figure 5.34). After the analysis of Table 5.41, it reveals that a maximum of migrants live alone in the district for their work purpose without their family members. But, migrants of the district who have better job or permanent business, they have large families or they live in a joint family.

Table 5.41 Family size of sample migrants in the South District of Sikkim

Family size	No. of respondents	Percentage (%)	95% Confidence of interval
Small	128	85.33	79.67-90.99
Medium	3	2.00	0.00-4.24
Large	19	12.67	7.34-17.99

Source: Household Survey, 2018

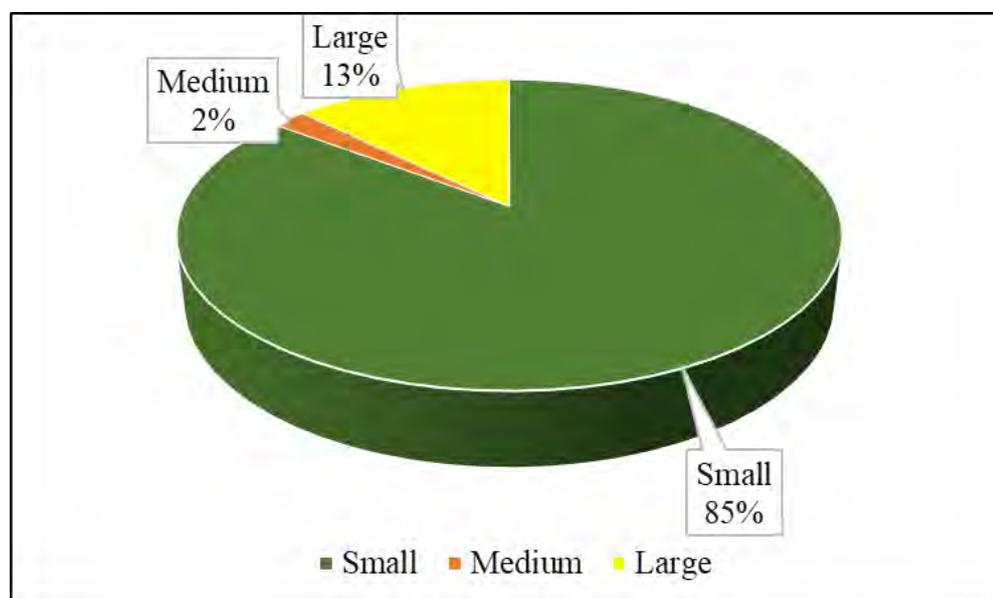


Figure 5.34 Family size of migrants in the South district of Sikkim

5.7.1.9 Educational level

Education is the basic element of society. Level of education indicates the development of society or the development of the social wellbeing. The number of literate or illiterate persons of an area shows the standard of living as well as level of ethics of the society. The education level of migrants of the district shows a woeful condition in education. 27 numbers of respondents have no formal education, which is 18% of the total migrants of the district. The percentage of literate persons among the migrants in the district is 82%, which is little higher than national (74.04%). According to census

2011, literacy rate of population of South district of Sikkim is 72.67%, whereas among the migrants it is 82%. 11 number of respondents have completed their primary level of education, which is 7.33% of the total migrants of the district. A maximum number of migrants of the district have completed their high school education or have a secondary level degree, which is 68.67% of the total migrants of the district. Only 6 numbers of respondents got a graduation degree, which is only 4% of the total migrants of the district. Whereas, 3 number of respondents got a degree in different technical education, which is only 2% among the migrants of the South district of Sikkim (Figure 5.35). Upper and lower bound on frequencies at 95% confidence interval is highest for high school education, which ranges between 76.09 to 61.24 and lowest upper and lower bound ranges between 4.24 to 0.00 4.24 respectively (Table 5.42). So, it can be said that the educational status among the migrants is little better than the district as well as the state rate of educational level of population.

Table 5.42 Education level of sample migrants in the South District of Sikkim

Education level	No. of respondents	Percentage (%)	95% Confidence of interval
No formal education	27	18.00	11.85-24.15
Primary Education	11	7.33	3.16-11.51
High School Education	103	68.67	61.24-76.09
Graduation	6	4.00	0.86-7.14
Technical education	3	2.00	0.00-4.24

Source: Household Survey, 2018

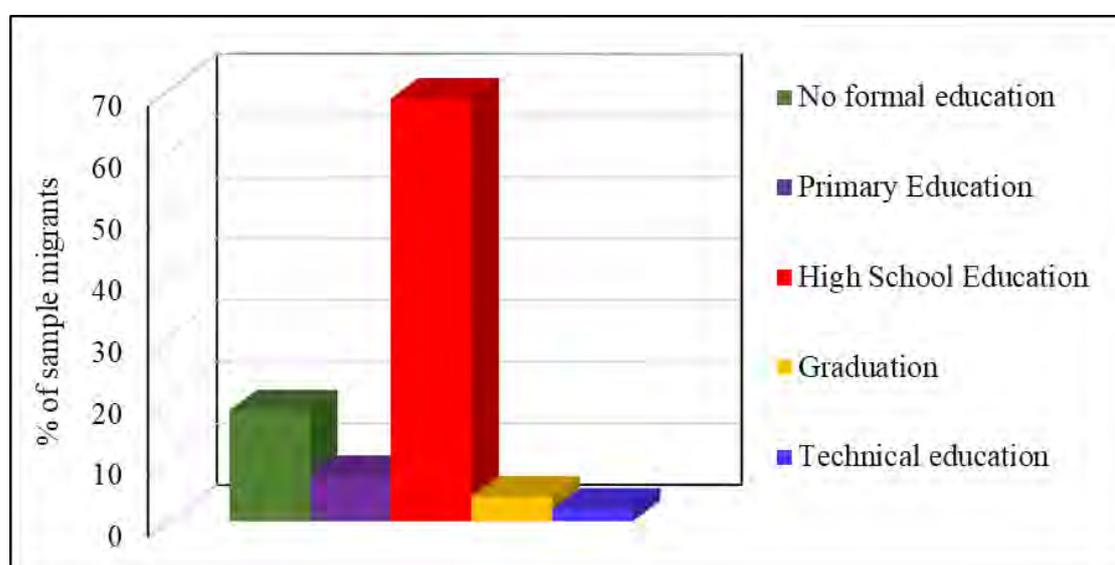


Figure 5.35 Education level of migrants in the South district of Sikkim

5.8 Economic Profile

5.8.1 Occupation

The occupational structure of the population is very important to know the economic prosperity of the people of an area. The occupational structure shows the standard of living as well as economic development of the area (Shrestha, 2003). The main reason for the in-migration of the South district of Sikkim is economic, so analysis of different occupations and occupational structure of the migrants in the district is very necessary to know their economic infrastructure.

Migrants of the district mainly engaged in unorganized sectors. Almost all the active migrants in the district engaged in secondary and tertiary activities in the district. The main occupation of the migrants in the district is daily wage-based labours. Figure 5.36 shows that 51 numbers of respondents are engaged in this occupation, which is 34% of the total active migrants of the district. After the daily workers, mason occupies the second leading position in occupation. 27 number of respondents are working as masons, which is 18% of the total active migrants of the district. Constructional workers, who have third leading position as their occupation. 20 number of respondents are engaged in these sectors, which is 13.33% of the total active migrants in the district. These three types of occupation occupy more than 65% of the total occupational structure in the district. Rather these three types of occupations, other occupations occupy a very low percentage in the occupational structure of the active migrants in the district. Hotel workers and paint workers occupy the fourth position, both have the same occupancy in the occupational structure of the active migrants of the district, which 6.67% of the total active migrants in the district. In this district, migrants are less interested in business due to the problems of capital for business and low rate of population distribution. Only 6 numbers of respondents are engaged in the business sector, which is only 4% among the active migrants in the district. Others occupation among the migrants in the district are tailor (3.33%), hotel manager (2.67%), contractor, travelling and salon (all are 2%), —*cook*” (1.33%), cobbler, —*Fuchka*” seller and plumber (all are 0.67%). These types of occupation in the district among the migrants are very unnoticeable due to maximum labour with low income. Migrants of the district mainly come for the earned money for better livelihood. But these occupations are not suitable for their earning, so they are not interested in these occupations. Upper bound and lower bound of daily workers among the migrants ranged between 41.58 and 26.42 respectively on frequencies at 95% confidence interval (Table 5.43).



Plate 5.5 Occupation of in-migrants at a. Gangtok b. Rongpo c. Namchi d. Singtham e. Paykong f. Jorethang



Plate 5.6 Construction people at a. Singtham b. Sambuk c. Jorethang d. Rongpo e. Gangtok f. Namchi

Table 5.43 Occupation of sample migrants in the South District of Sikkim

Occupation	No. of respondents	Percentage (%)	95% confidence interval
Business	6	4.00	0.86-7.14
Cobbler	1	0.67	0.00-1.97
Coolie	2	1.33	0.00-3.17
Construction Worker	20	13.33	7.89-18.77
Contractor	3	2.00	0.00-4.24
Daily Worker	51	34.00	26.42-41.58
Fuchka stall	1	0.67	0.00-1.97
Hotel Maneger	4	2.67	0.09-5.24
Hotel Worker	10	6.67	2.67-10.66
Mason	27	18.00	11.85-24.15
Paint Worker	10	6.67	2.67-10.66
Plumber	1	0.67	0.00-1.97
Salon	3	2.00	0.00-4.24
Student	3	2.00	0.00-4.24
Tailor	5	3.33	0.46-6.21
Travel & Hotel	3	2.00	0.00-4.24

Source: Household Survey, 2018

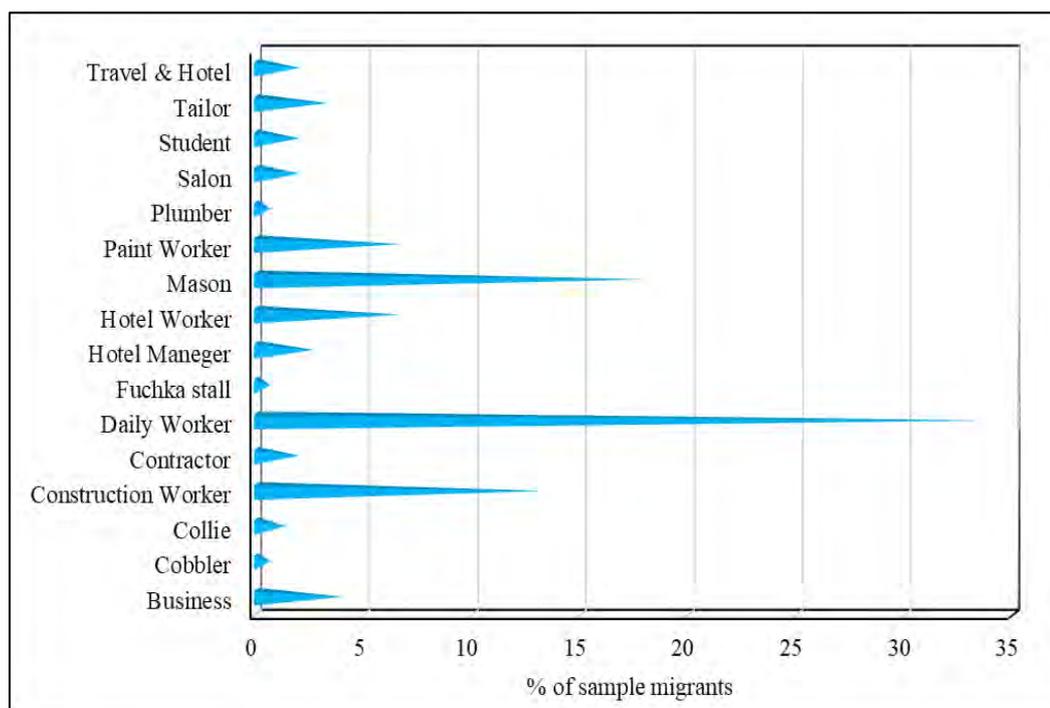


Figure 5.36 Occupation structure of migrants in the South district of Sikkim

5.8.2 Employment status

Employment status mainly depends on sectors of economy. Status of employment shows the opportunity of job, security of job and working stability. Among the migrants of the South district of Sikkim, there are mainly three types of employment status found, which are 1) working in private sectors, 2) working in public sectors and 3) self-employed in different sectors. About 111 numbers of respondents are self-employed, which is 74% of the total working migrants in the district. 36 numbers of respondents are working in different private sectors, which is 24% of the total working migrants in the district. Whereas, only 3 sample migrants are working in public sectors for their livelihood, which is only 2% of the total active migrants in the district (Figure 5.37). Employment status of sample migrants in the district at 95% confidence level ranges between 18.70 to 33.05 or private sectors; 40.76 to 57.14 for public sectors and 18.06 to 32.29 for the self-employed migrants who were working in different sectors (Table 5.44).

Table 5.44 Employment Status of sample migrants in the South District of Sikkim

Types	N	Percentage (%)	95% confidence interval
Private	36	24.00	17.17 - 30.83
Public	3	2.00	0.00 - 4.24
Self	111	74.00	66.98 - 81.02

Source: Household Survey, 2018

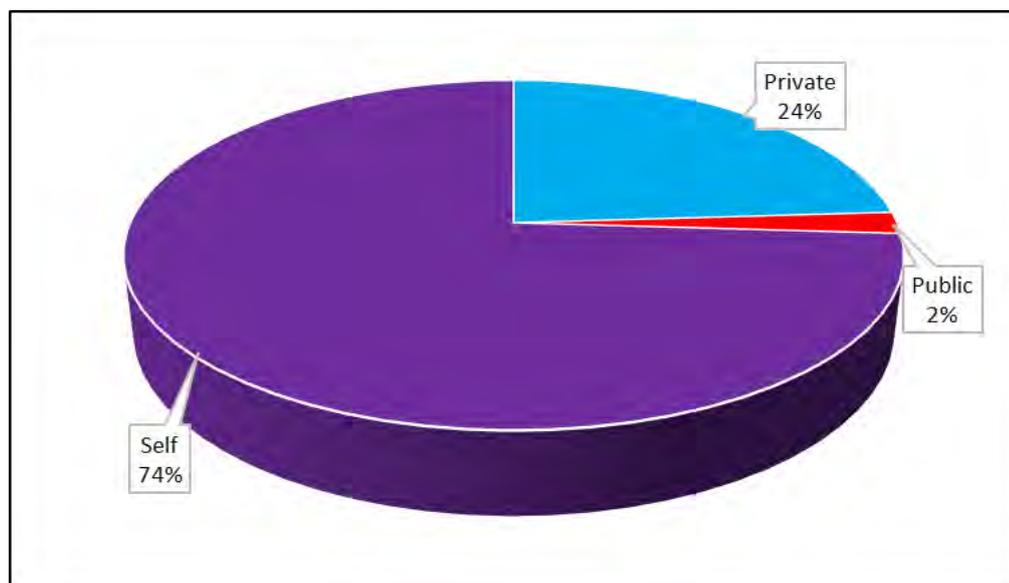


Figure 5.37 Employment status of migrants in the South district of Sikkim

5.8.3 Income

Average monthly income of the sample migrants in the district is ranging widely from Rs. 4000.00 to Rs. 100000.00 per month (Figure 5.38). It revealed the economic disparity among the migrants of the district. The average monthly income of the migrants in the district is Rs. 14350.34, whereas Rs. 12299.88 is the standard deviation value of monthly income of the sample respondents. The coefficient of variance of the same is 85.71%. Upper bound of an average monthly income of the migrants in the district is 16362.15 and lower bound of average monthly income of the migrants in the district is 12338.53 on frequencies at 95% confidence interval (Table 5.45).

Table 5.45 Average monthly income of sample migrants of South district of Sikkim

Statistic	Monthly income (Rs.)
Minimum	4000.00
Maximum	100000.00
Mean	14350.34
SD	12299.88
CV	85.71
95 % Confidence interval	12338.53 - 16362.15

Source: Household Survey, 2018

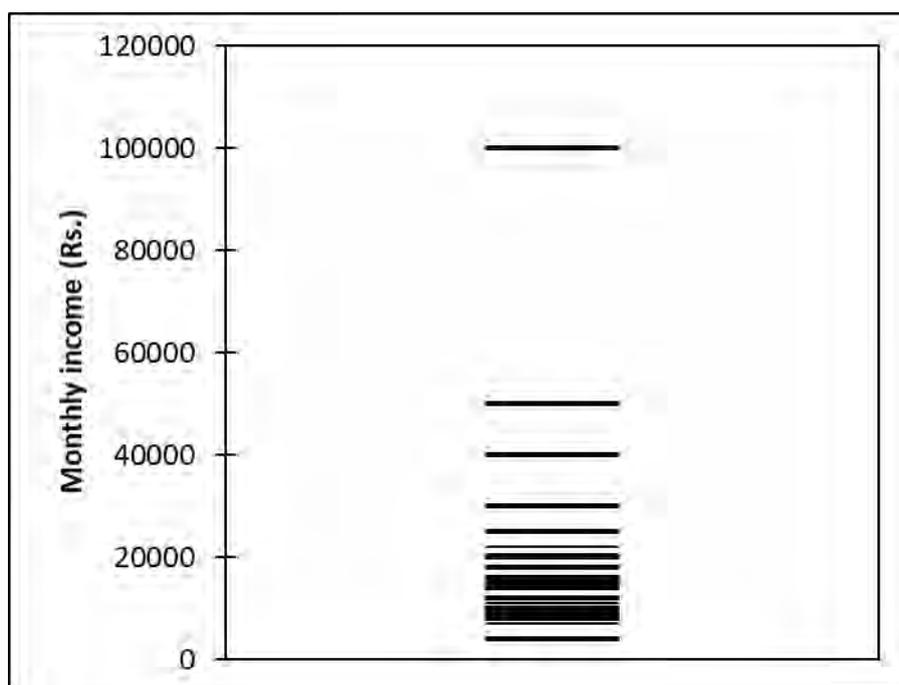


Figure 5.38 Average monthly income of migrants in the South district of Sikkim

5.8.4 Remittance

Maximum numbers of active migrants of the district send remittance monthly or annually or sometimes to their families, who live in the homeland of the migrants. Sample respondents stated that their household in their homeland was mainly economically dependent on them. So, a detailed analysis regarding remittance has to be discussed to understand the economic conditions of the migrants in the district.

5.8.4.1 Annual amount of remittance

Amount of annual remittance of sample respondents of the South district of Sikkim shows a surprising scenario. The maximum annual amount of remittance is Rs. 480000.00, on the other hand the minimum annual amount of remittance remains nil for some of the migrants in the district (Figure 5.39b). The average amount of annual remittance among the migrants of the district is Rs. 70090.23. The value of standard deviation and coefficient of variation is Rs. 66.82 and 46836.70 respectively. The annual amount of remittance which is sent by the migrants of the district to their homeland is ranged between 78154.17 (upper bound frequencies) and 62026.29 (lower bound frequencies) at 95% confidence interval (Table 5.46). So, after the analysis of the annual amount of remittance, it is clear that there is an extensive discrepancy between income, remittance of money and standard of living as well as socio-economic conditions of the migrants' population of the district.

Table 5.46 Amount of Remittance of sample migrants of South district of Sikkim

Statistic	Amount of Remittance (Rs.)
Minimum	0.00
Maximum	480000.00
Mean	70090.23
SD	66.82
CV	46836.70
95 % Confidence interval	62026.29 -78154.17

Source: Household Survey, 2018

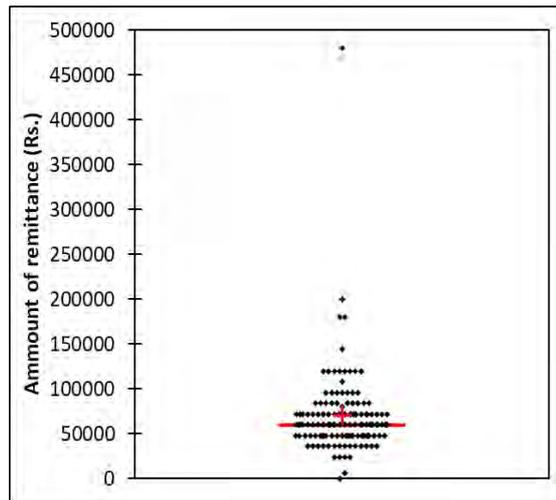


Figure 5.39 Migrants’ (a) Land holding and (b) Amount of remittance in the South district of Sikkim

5.8.4.2 Recipient of remittance

Sample migrants of the district send their money to the family or others in their homeland have a wide variety. They stated that remittance sends to the recipients as per necessity. Though, maximum numbers of respondents send their money to their family without any specification of the family members. Total 45 respondents send their money to the family, which is 34.09% among the total recipients. Parents of the sample respondents as recipients of remittance without any specification of father and mother occupying 22.73% of the total recipients. Fathers of the respondents occupying 20.45% as recipients of remittance. 19.70% of wife of the respondents acted as recipients of remittance. Whereas, mothers and brothers occupy very little proportion of 2.27% and 0.76% as recipients of remittance (Figure 5.40). Upper and lower bound on frequencies at 95% confidence interval ranges between 42.18 to 26.00 for families; 29.88 to 15.58 for parents; 27.34 to 13.57 for fathers; 26.48 to 12.91 for wives; 4.82 to 0.00 for mothers and 2.24 to 0.00 for brothers (Table 5.47).

Table 5.47 Recipient of remittance of sample migrants in the South District of Sikkim

Recipient	N	Percentage (%)	95% confidence interval
Brother	1	0.76	0.00 - 2.24
Family	45	34.09	26.00 - 42.18
Father	27	20.45	13.57 - 27.34
Mother	3	2.27	0.00 - 4.82
Parents	30	22.73	15.58 - 29.88
Wife	26	19.70	12.91 - 26.48

Source: Household Survey, 2018

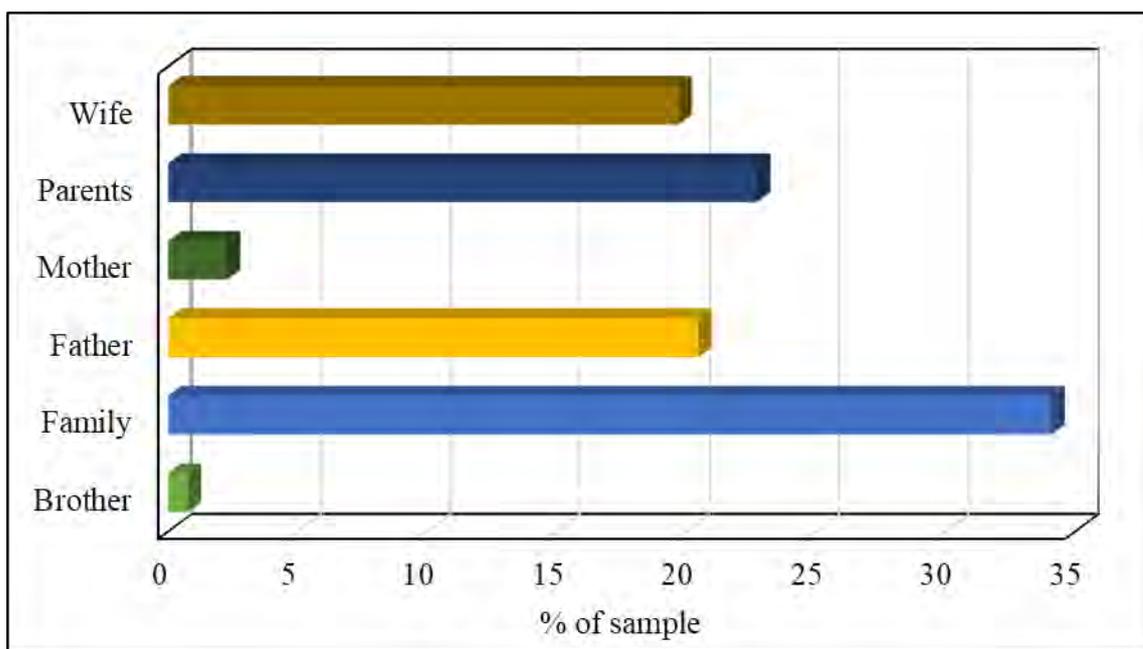


Figure 5.40 Recipient of remittance of migrants in the South district of Sikkim

5.8.4.3 Purpose of remittance

There are a variety of purposes for the remittance to their homeland of migrants of the district. 90 numbers of respondents, which is 68.18% have sent their income as remittance only for different household purposes. 30.30% respondents remit for the household purposes along with expense for education of the children. Only one respondent stated that the main purpose for remittance is purchase of homeland and another respondent stated that the main purpose for remittance is expenditure of household along with education and marriage in his homeland (Figure 5.41). The highest upper bound and lower bound are 76.13 and 61.24 for household purposes and lowest upper bound and lower bound are 2.24 and 0.00 for other purposes on frequencies at 95% confidence interval (Table 5.48).

Table 5.48 Purpose of remittance of sample migrants in the South District of Sikkim

Purpose	N	Percentage (%)	95% confidence interval
Household	90	68.18	60.24 - 76.13
Household & Education	40	30.30	22.46 - 38.14
Household, Education & Marriage	1	0.76	0.00 - 2.24
House land	1	0.76	0.00 - 2.24

Source: Household Survey, 2018

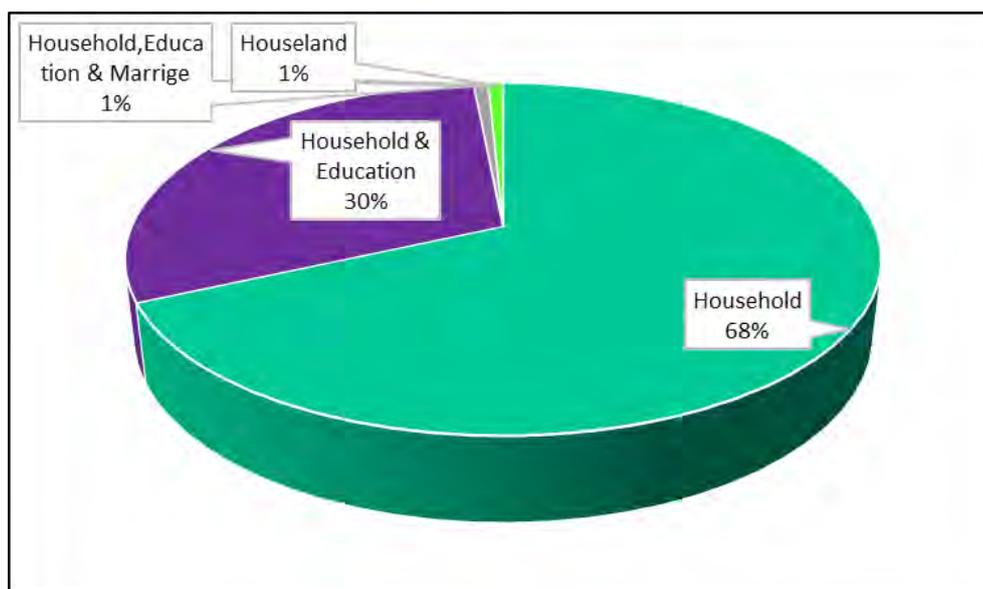


Figure 5.41 Purpose of remittance of migrants in the South district of Sikkim

5.8.4.4 Medium of remittance

Different types of the medium have been adopted by the migrants of the district to remit their money to their homelands. 60 numbers of respondents remitted their money through by hand of friends and relatives who travelled back, it occupied 45.45% of the medium of remittance. About 42.42% respondents remitted their money through the money exchange house. 9.09% of respondents send their money to the homeland by themselves when they travel back to the home (Figure 5.42). Only a little proportion of respondents remitted their money through the bank and himself (1.52%), post office (0.76%), both the bank and by hand of friends and relatives (0.76%). Remittance of money through the bank and by hand of friends and relatives ranges 50.86 (upper bound frequencies) to 33.99 (lower bound frequencies) and 53.95 (upper bound frequencies) to 36.96 (lower bound frequencies) respectively at 95% confidence interval (Table 5.49).

Table 5.49 Medium of remittance of sample migrants in the South District of Sikkim

Types	N	Percentage (%)	95% confidence interval
Bank	56	42.42	33.99 - 50.86
Bank & By Hand	1	0.76	0.00 - 2.24
Bank & Self	2	1.52	0.00 - 3.60
By Hand	60	45.45	36.96 - 53.95
By Post Office	1	0.76	0.00 - 2.24
Self	12	9.09	4.19 - 14.00

Source: Household Survey, 2018

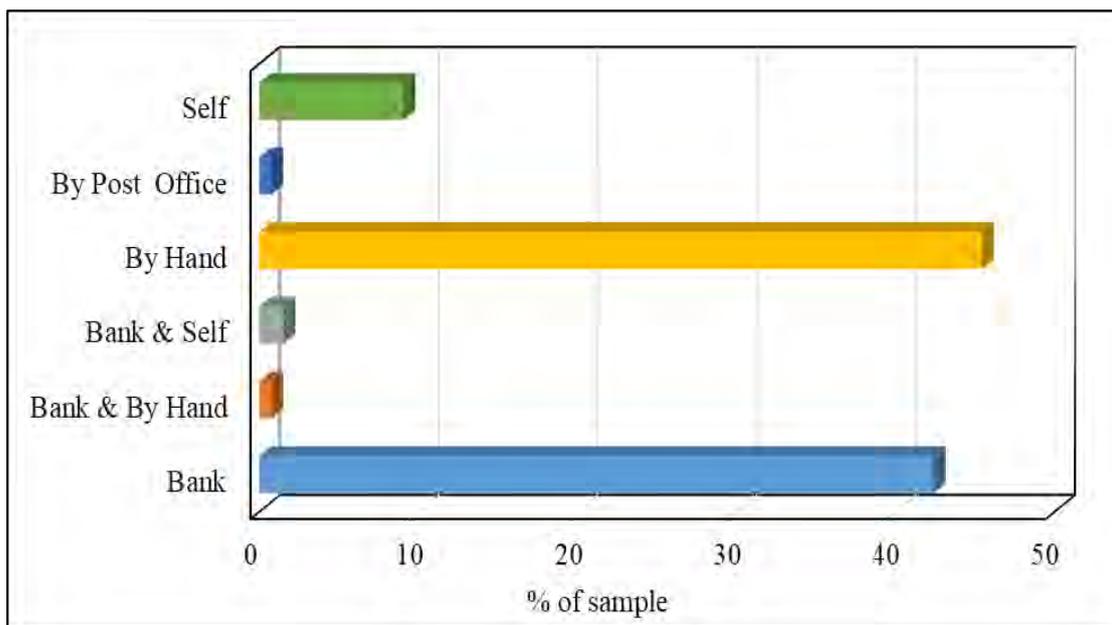


Figure 5.42 Medium of remittance of migrants in the South district of Sikkim

5.8.5 Expenditure

Migrants of the South district of Sikkim expense their income in different ways. The expense for their livelihood to purchase the food and drinks, fuel or electricity, cloth along with expense for different health issues, education of children, (Figure 5.43) travelling and entertainment and other different purposes of living. Expense by the migrants for food and drinks ranges between Rs. 1000 to Rs. 30000 per month. The average expenditure for the food and drinks by the migrants of the district is Rs. 3363.33 and standard deviation value for the same is 2870.76. From Rs. 200 to Rs. 20000 per month has been spent by the migrants of the district for the consumption of fuel and electricity. The mean value and standard deviation value of expenditure for fuel and electricity are Rs. 793.48 and 2107.12 respectively. Expenses by the migrants of the district to purchase cloth for their livelihood ranges between Rs. 300 to Rs. 5000 per month. The average expenditure by the migrants for their clothing is Rs. 753.45 per month. The value of standard deviation of the clothing by the migrants of the district is Rs. 582.41. Migrants of the district do not expense very much for their health issues. They expense Rs. 200 to Rs. 5000 per month for their different health issues. The average expenditure for the health problems of the migrants is only Rs. 862.50 per month and the value of SD for the same is Rs. 1189.33. It reveals that the migrants of the district are quite healthy and since, the health infrastructure of Sikkim is based on the State Government, therefore the expense related to health issues is very low. The

migrants of the district expense their income for education shows a spectacular scenario. Some of the migrants' families have no expense for the education purpose and other family's expense upto Rs. 5000 per month for the education of children. The average expenditure for the education in the district by the migrants is Rs. 3070.59, which is quite higher compared to average monthly income of the migrants in the district. The SD value of the same is Rs. 20.79 per month. Migrants expense their money for their travelling and entertainment ranges between Rs. 200 to Rs. 5000 per month. The average monthly expenditure for travelling and entertaining by the migrants of the district is Rs. 870.73 (Figure 5.43). It indicates that the migrants are not earning enough to enjoy travelling and entertainment. The SD value for the travel and entertainment per month by the migrants of the district is Rs. 885.06 per month. Rs. 0.00 to Rs. 400000 is expensed by the migrants of the district for other purposes of their livelihood. The mean value of the expense in other purposes is Rs. 4516.00 per month, which indicates that there are some of the migrants who have earned enough, but the maximum number of migrants is not in a good condition. The SD value for the same is Rs. 32591.01 per month (Table 5.50).

Different categories of expenditure of the migrants in the district have been verified at 95% confidence interval. Expenditure for food and drinks ranges between Rs. 2870.76 to Rs. 2900.16 per month at 95% confidence interval; expense for fuel and electricity ranges between Rs. 357.11 to Rs. 2107.12 per month at 95% confidence interval; expense for clothing by the migrants of the district ranges between Rs. 582.41 to 66.33 per month; expense for the different health problems of the migrants in the district fluctuated from Rs. 228.75 to Rs.1189.33 per month at 95% confidence interval; whereas, educational expenditure of the migrants is slightly varied from Rs. 2001.21 to Rs. 2079.89 per month at 95% confidence interval; migrants of the district expense for their travelling and entertainment at 95% confidence interval is Rs. 676.26 to Rs. 885.06 per month. Other expenditure in different purposes of the migrants in the district at 95% confidence interval has widely fluctuated from Rs. 742.26 to Rs. 32591.01 per month (Table 5.50). So, it's observed that the expenses for the fuel and electricity, health issues and other purposes has an extreme range reveals that these categories of expenditure are expenses by the migrants almost similar in nature, whereas expenses for the food and drinks, clothing, education, travel and entertainment has a little variation at 95% confidence interval. Which denotes that there is an extreme variation

in these categories of expenditure means these categories are not enjoyed similarly by the maximum numbers of migrants of the district.

Table 5.50 Expenditure of sample migrants in the South District of Sikkim

Item	Minimum	Maximum	Mean	SD	95 % Confidence interval
Food/drinks	1000	30000	3363.33	2870.76	2870.76 - 2900.16
Heating/ Electricity	200	20000	793.48	2107.12	357.11 - 2107.12
Clothing	300	5000	753.45	582.41	582.41 - 646.33
Health	200	5000	862.50	1189.33	228.75 - 1189.33
Education	0	5000	3070.59	2079.89	2001.21 - 2079.89
Travel/ Entertainment	200	5000	870.73	885.06	676.26 - 885.06
Others	0	400000	4516.00	32591.01	742.26 - 32591.01

Source: Household Survey, 2018

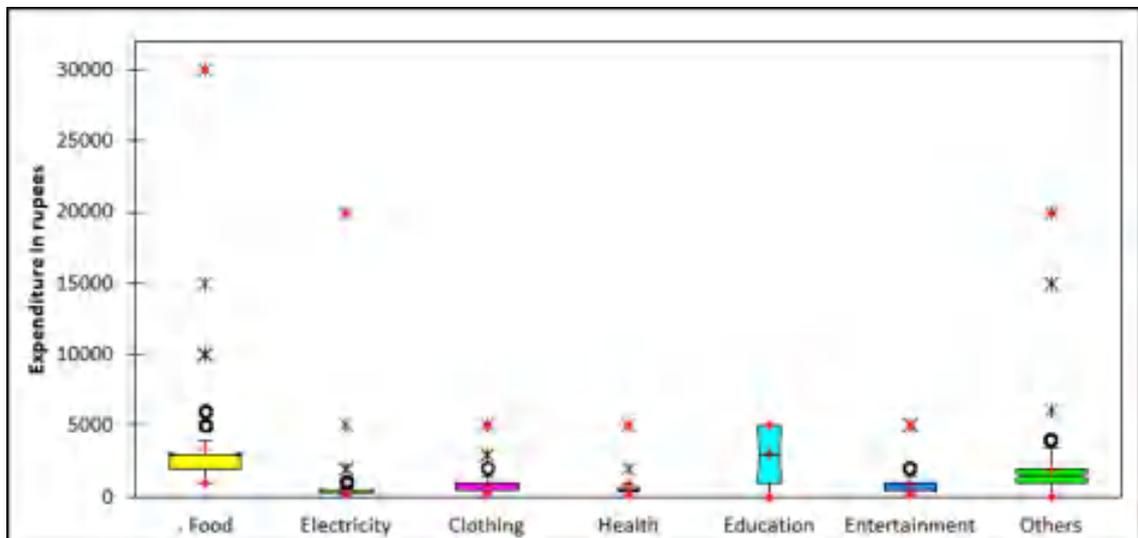


Figure 5.43 Boxplot of monthly expenditure of sample migrants of the South district of Sikkim

5.8.6 Savings

5.8.6.1 Types of savings

In-migrants of the district do not save their earnings as expected. Only 33.33% respondents among the migrants have savings in any kind of mode. There are a variety of types of savings by the migrants in the district. 23 numbers of respondents have saved their money in any kinds of government organisations including nationalised banks and post offices, which is highest at 46.94%, whereas 19 numbers of respondents

deposited their money to any kinds of private organisations including private banks, which is 38.78% of total types of savings. 10.20% of respondents have their savings only in the post office. On the other hand, 2.04% of respondents have savings in only banks and also 2.04% in any other financial organisation (Figure 5.44). Types of savings are ranges between 60.91 (upper bound frequencies) to 32.97 (lower bound frequencies) for any Government financial organisation and 52.42 (upper bound frequencies) to 25.13 (lower bound frequencies) for any kind of private financial organisation at 95% confidence interval. (Table 5.51).

Table 5.51 Types of savings of sample migrants in the South District of Sikkim

Purpose	N	Percentage (%)	95% confidence interval
Bank	1	2.04	0.00 - 6.00
Govt.	23	46.94	32.97 - 60.91
Others	1	2.04	0.00 - 6.00
P.O	5	10.20	1.73 - 18.68
Private	19	38.78	25.13 - 52.42

Source: Household Survey, 2018

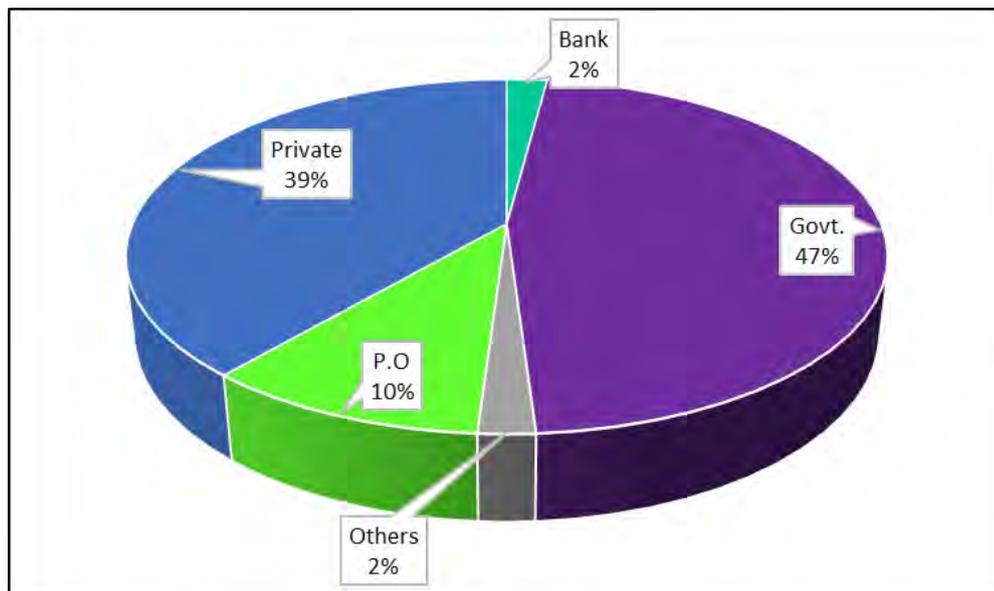


Figure 5.44 Types of savings of migrants in the South district of Sikkim

5.8.6.2 Amount of savings

In-migrants of the district have the minimum quantity of savings. Maximum numbers of respondents haven't any savings. The amount of savings among the migrants of the district ranges between Rs. 60000.00 to nil (Figure 5.45). The average amount of savings by the migrants of the district is Rs. 18923.08 The value of standard deviation of amount of savings of the migrants of the district is Rs. 69.03, whereas value of

coefficient of variation of the same is 13063.23. The amount of savings by the migrants of the district ranges between 22595.38 (upper bound frequencies) to 15250.77 (lower bound frequencies) at 95% confidence interval (Table 5.52).

Table 5.52 Amount of savings of sample migrants of South district of Sikkim

Statistic	Amount of savings (Rs.)
Minimum	0.00
Maximum	60000.00
Mean	18923.08
SD	69.03
CV	13063.23
95 % Confidence interval	15250.77 - 22595.38

Source: Household Survey, 2018

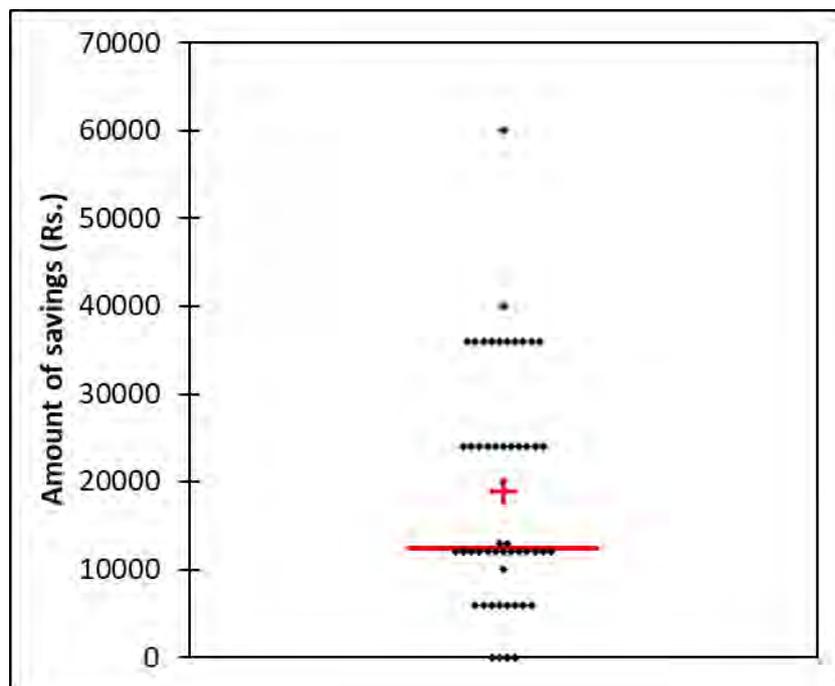


Figure 5.45 Amount of savings of migrants in the South district of Sikkim

5.8.6.3 Purpose of savings

There are different purposes for saving the income of the migrants in the district. The main purpose of savings by the migrants is future security or future planning. 30 numbers of respondents saved their money for future economic security, which is 60% of the total respondents who saved their money for different purposes. 10% of respondents have savings for daughter marriage; 8% each for higher education of children and future economic security along with marriage; 6% for land purchasing in their homeland; capital has grown, family necessity, house problems and sister

marriage occupying 2% each for savings (Figure 5.46). Savings for future purposes has upper bound 74.87 and lower 47.58 on frequencies at 95% confidence interval, which is highest for both cases and capital has grown, family necessity, house problems and sister marriage have least upper bound of 6.00 and lower bound of 0.00 on frequencies at 95% confidence interval (Table 5.53).

Table 5.53 Purpose of savings of sample migrants in the South District of Sikkim

Purpose	N	Percentage (%)	95% confidence interval
Capital grown	1	2.00	0.00 - 6.00
Daughter's Marriage	5	10.00	1.73 - 18.68
Education	4	8.00	0.50 - 15.83
Family	1	2.00	0.00 - 6.00
Future	30	60.00	47.58 - 74.87
Future & Marriage	4	8.00	0.50 - 15.83
House	1	2.00	0.00 - 6.00
Land Purchase	3	6.00	0.00 - 9.62
Sister Marriage	1	2.00	0.00 - 6.00

Source: Household Survey, 2018

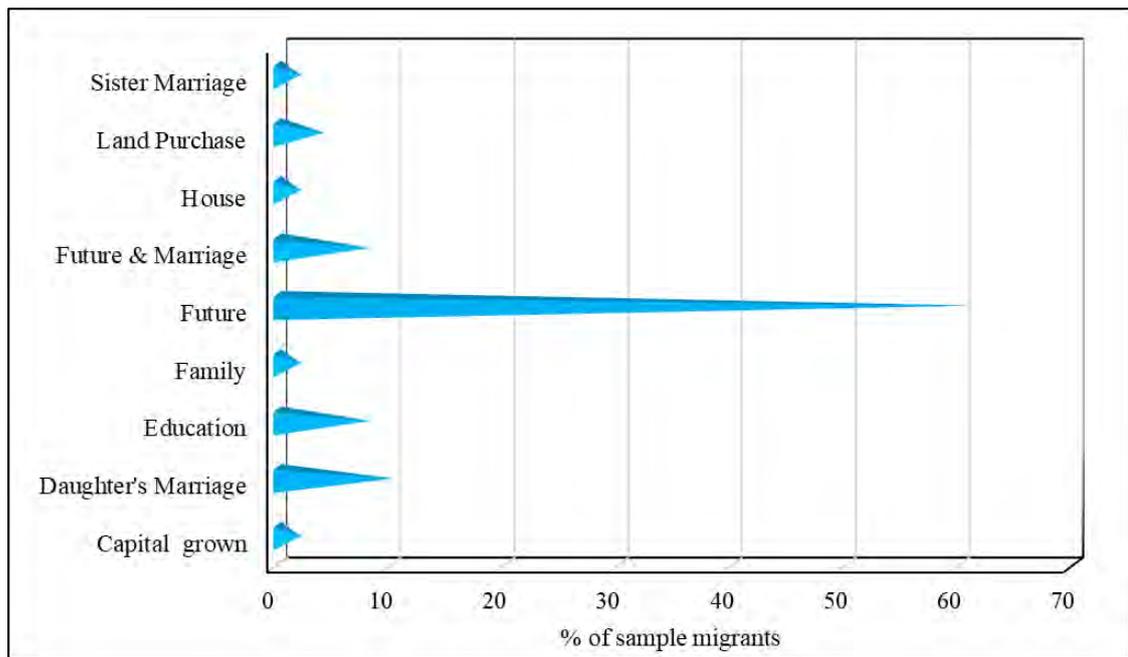


Figure 5.46 Purpose of savings of migrants in the South district of Sikkim

5.8.7 Loan status

Loan borrower among the migrants of the district is quite less compared to their average monthly income. About 105 numbers of respondents haven't any loan for any purposes, which is 70% of the total migrants of the district. Whereas, 45 numbers of

respondents are loan borrowers for different purposes with a wide variety of loan amounts, which is only 30% among the migrants of the district (Figure 5.47). Migrants who haven't any kind of loan are ranged between 77.33 as upper bound frequencies and 62.67 as lower bound frequencies at 95% confidence interval. On the other hand, migrants of the district who have different kinds of loan ranges between upper bound and lower bound of 37.33 and 22.67 respectively on frequencies at 95% confidence interval (Table 5.54).

Table 5.54 Status of loan of sample migrants in the South District of Sikkim

Response	N	Percentage (%)	95% confidence interval
No	105	70.00	62.67 - 77.33
Yes	45	30.00	22.67 - 37.33

Source: Household Survey, 2018

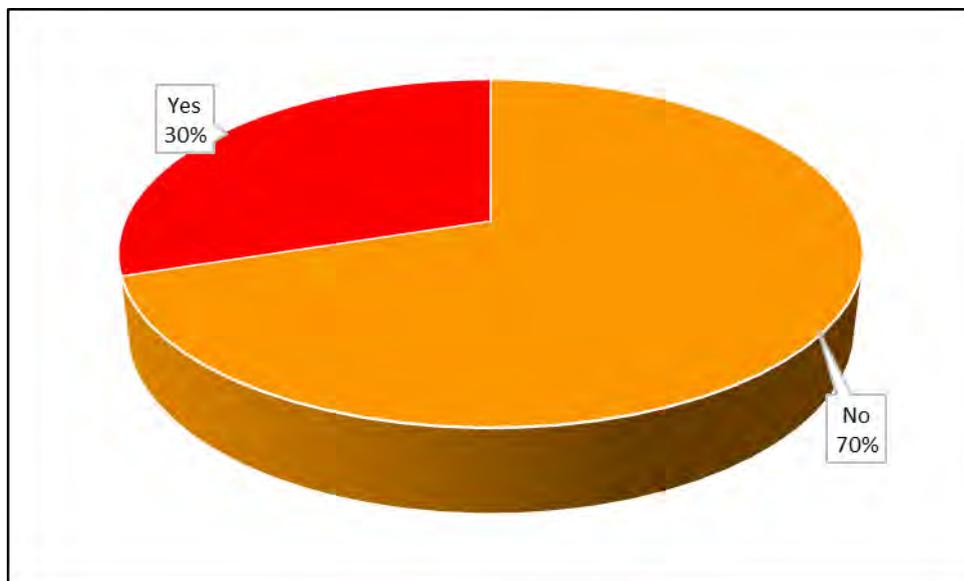


Figure 5.47 Status of loan of migrants in the South district of Sikkim

5.8.7.1 Amount of loan

Amount of loan conditions of the in-migrants of the South district of Sikkim have a peculiar scenario. Amount of loan among the in-migrants of the district ranges between Rs. 5000000 to Rs. 5000. The average amount of loan among the sample migrants is Rs. 166822.22. Standard deviation of the amount of loan among the sample migrants is Rs. 438.16, where Rs. 730954.54 is coefficient of variation of the same. Amount of land holding among the in-migrants at 95% confidence level ranges between 388906.75 as upper bound frequencies to -55262.30 as lower bound frequencies (Table 5.55 and Figure 5.48).

Table 5.55 Amount of Loan of sample migrants of South district of Sikkim

Statistic	Amount of Loan (Rs.)
Minimum	5000.00
Maximum	5000000.00
Mean	166822.22
SD	438.16
CV	730954.54
95 % Confidence interval	-55262.30 - 388906.75

Source: Household Survey, 2017

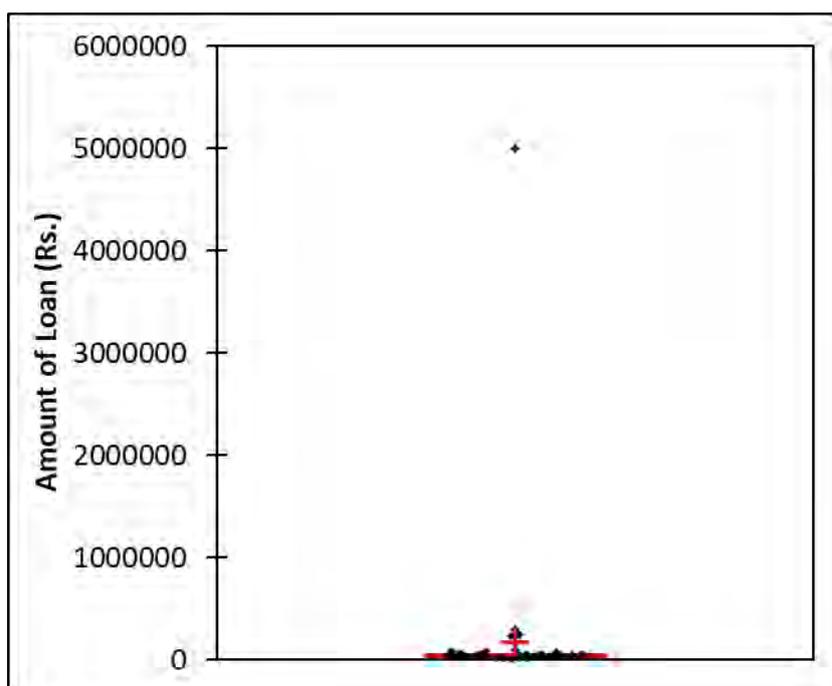


Figure 5.48 Amount of loan of migrants in the South district of Sikkim

5.8.8 Working conditions

5.8.8.1 Place of work

Workplace means where people perform their jobs, e.g., in a factory or shop or office or any other places or rooms or buildings. Broadly, workplaces considered urban areas or rural areas. Migrants of the South district of Sikkim are working in both the urban and rural areas. It is found from Table 5.56; migrants of the district are preferring urban areas as their working place rather than rural areas. 90 numbers of respondents, which is 60% of the total migrants in the district are working in urban areas, whereas only 60 numbers of respondents, which is 40% of the total migrants in the district are working in rural areas (Figure 5.49). The main reason for this discrimination is nature of earning. People who work in urban areas earn more money than migrants who are

working in rural areas. Another reason is the lifestyle or standard of living, which is more comfortable or secure in the urban areas than the rural areas.

Table 5.56 Work Place of migrants in the South district of Sikkim

Work Place	No. of respondents	Percentage	Proportion per category	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Rural	60	40.00	0.40	32.16	47.84
Urban	90	60.00	0.60	52.16	67.84

Source: Household Survey, 2018

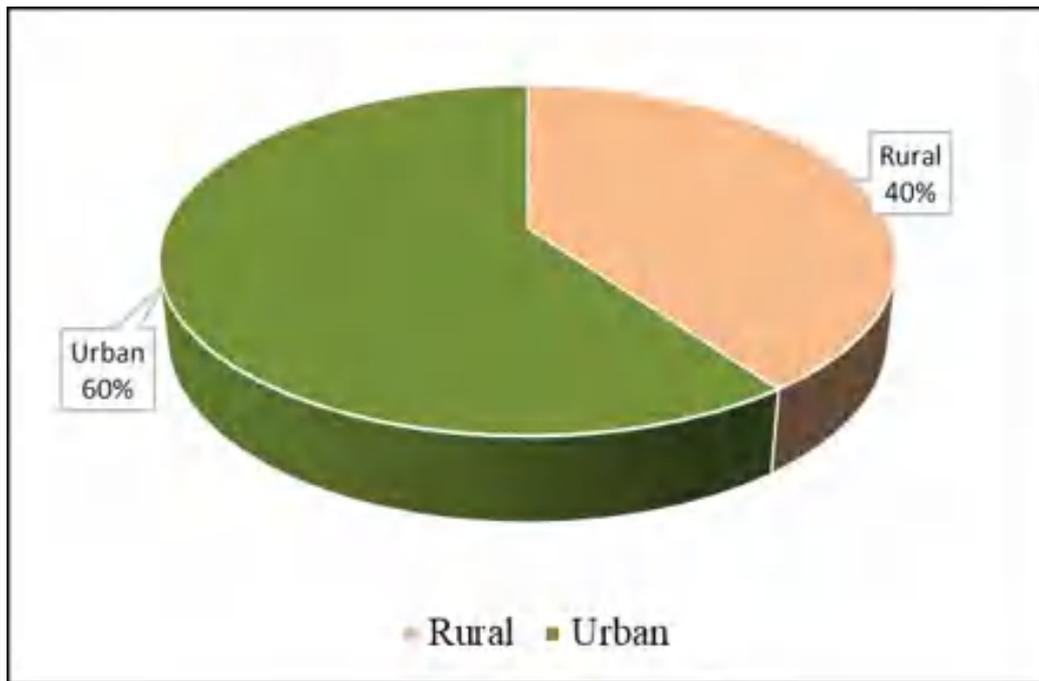


Figure 5.49 Work place of migrants in the South district of Sikkim

5.8.8.2 Working time

Working conditions of workers reflect by few parameters. Working day in a week, as well as working hours in a day, are considered as significant parameters for measuring working conditions of workers in place. Maximum working day in a week of migrants in the district is 7 days and lowest working days in a week is 5 days. The average working days per week in the district is 6.51 (Figure 5.50a). Working day per week of migrants of the South district of Sikkim revealed that they are working little higher than the labour act. of India, which is maximum 6 days a week. Standard deviation value of working days per week in the district is 0.57 and coefficient of variation for the same is 8.82. Working days per week of migrants in the district ranges between 6.60 as upper

bound to 6.42 as lower bound on frequencies at 95% confidence interval (Table 5.57). Working time of the sample respondents of the South district of Sikkim is not so acceptable. Working hours of the sample respondents in the district are ranged between 6 to 12 hours in a day (Figure 5.50b) and average working hours of migrants in a day is 9.07 hours, which is quite more than the instruction abide by the labour commission of India under labour act. The standard deviation of working hours of the migrants in the district is 1.51 hours and the value of coefficient of variation for the same is 16.69. Working hours per day of migrants in the district ranges between 9.31 as upper bound to 8.82 as lower bound on frequencies at 95% confidence interval (Table 5.57).

Table 5.57 Working time of the sample migrants of South district of Sikkim

Statistic	Works/week (day)	Works/day (hours)
Minimum	5	6
Maximum	7	12
Mean	6.51	9.07
SD	0.57	1.51
CV	8.82	16.69
95 % Confidence interval	6.42 - 6.60	8.82 - 9.31

Source: Household Survey, 2018

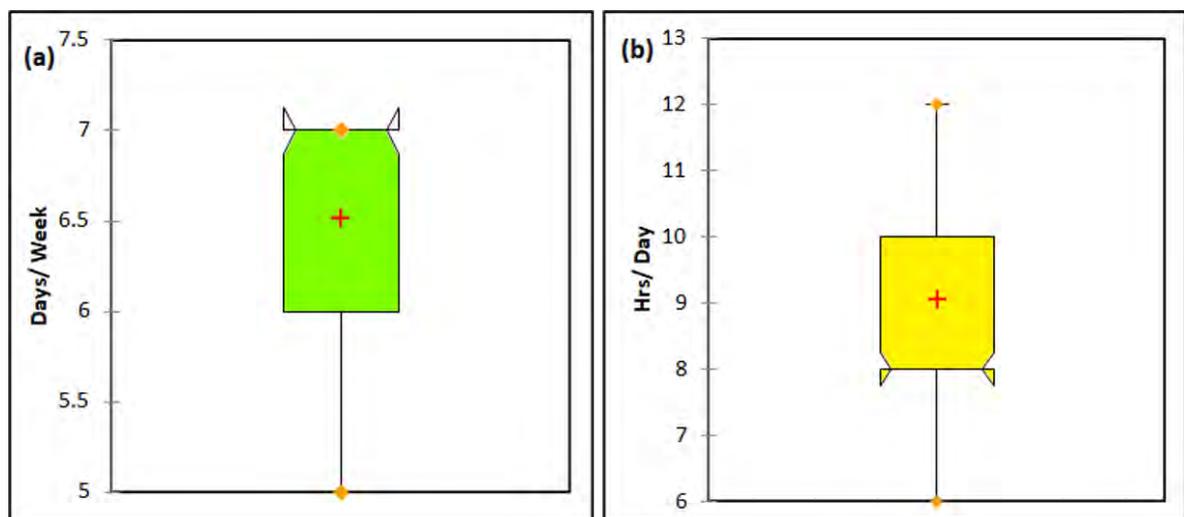


Figure 5.50 (a) Working days per week, (b) Working hours per day of migrants in the South district of Sikkim

5.9 Household status

5.9.1 Tenure of dwelling

Tenure of the dwelling of migrants in the South district of Sikkim is varying from place to place. There are five categories of tenure of dwelling are found, which are 1) own houses, 2) Rented houses, 3) workplaces, 4) Hostel and 5) others, which means with colleagues or with the relatives. Among these five categories of dwelling tenure rented houses occupied by the maximum number of 105 respondents, which is 70% of the total migrants of the district. Among the migrants, 41 numbers of respondents live in the workplace, 27.33% of the total migrants. 2 numbers of respondents live in a hostel, whereas, only 1 respondent have own houses for the living, which is 0.67% of the total migrants of the district, whereas also only 1 respondent is live in the friend or relative house, which is 0.67% of the total migrants of the district (Figure 5.51). After the analysis of Table 5.58, it's found that the maximum numbers of migrants live alone in the district, so they are unwilling to pay more money for their living. On the other hand, living in a workplace or hostel is not so hygienic or perfect for their livelihood. For these reasons maximum numbers of migrants are willing to live in the rented houses as per their standard of living. But the migrant who lives with his family members and who have earned attractive remuneration are able to own their house.

Table 5.58 Tenure of dwelling of migrants in the South District of Sikkim

Tenure of Dwelling	No. of respondents	% of respondents	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)	Proportion per category
Own	1	0.67	0.00	1.97	0.01
Rented	105	70.00	62.67	77.33	0.70
Work Place	41	27.33	20.20	34.47	0.27
Hostel	2	1.33	0.00	3.17	0.01
Others	1	0.67	0.00	1.97	0.01

Source: Household Survey, 2018

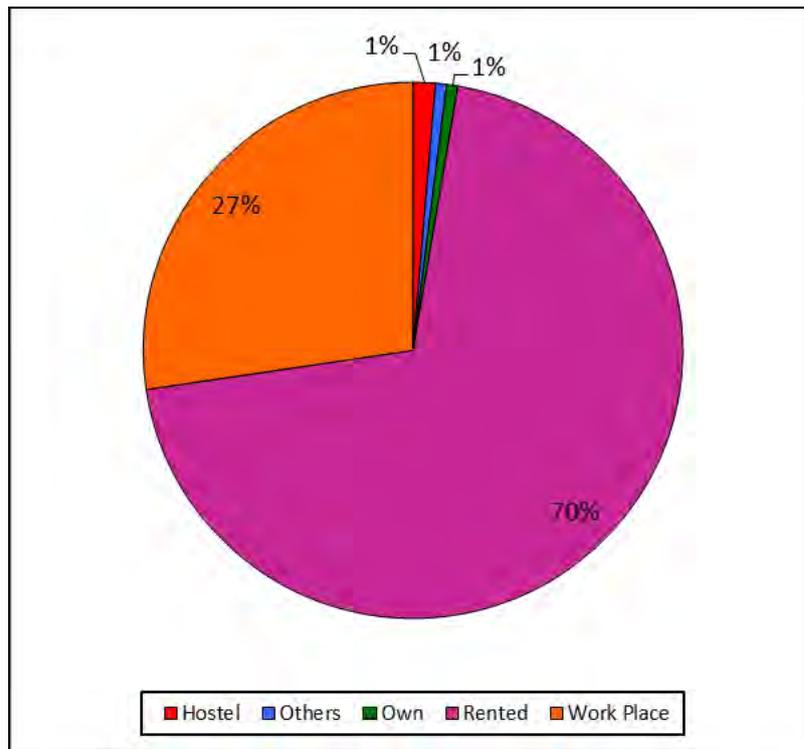


Figure 5.51 Tenure of dwelling of migrants in the South district of Sikkim

5.9.2 Housing structure

In our present society house is not only for the shelter, it also provides safety, security, privacy and rational protection of our physical and mental health. The standard of living mainly depends on the housing structure of the people. There are four categories of housing structure found among the migrants of the South district of Sikkim, which are: 1) Kutcha, 2) Semi Pucca, 3) Pucca and 4) Wooden. Maximum numbers of migrants in the district live in a pucca housing structure. 88 numbers of respondents live in the pucca house, which is 58.67% of the total migrants in the district. 53 numbers of respondents live in the semi pucca housing structure, which is 35.33% of the total migrants in the district. Whereas, only 8 and 1 numbers of respondents live in the kutcha and wooden housing structure respectively. Among the migrants of the district only 5.33% have kutcha housing structure and only 0.67 % migrants of the district live in a wooden structure (Table 5.59 and Figure 5.52). So, it reveals that maximum numbers of migrants live in a rented house and also in a pucca housing structure, which means though, migrants of the district having low standard of living but, native residents of the district have high level of standard of living. So, it can be said that there is a huge variety in the standard of living or nature of earning among the natives and migrants in the district.



Plate 5.7 Housing structure at a. Jorethang b. Gangtok c. Paykong d. Ravanglae. Paykong f. Singtham

Table 5.59 Housing structure of migrants resides in the South District of Sikkim

Housing structure	No. of respondents	% of respondents	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)	Proportion per category
Kutchha	8	5.33	1.74	8.93	0.05
Semi Pucca	53	35.33	27.68	42.98	0.35
Pucca	88	58.67	50.79	66.55	0.59
Wooden	1	0.67	0.00	1.97	0.01

Source: Household Survey, 2018

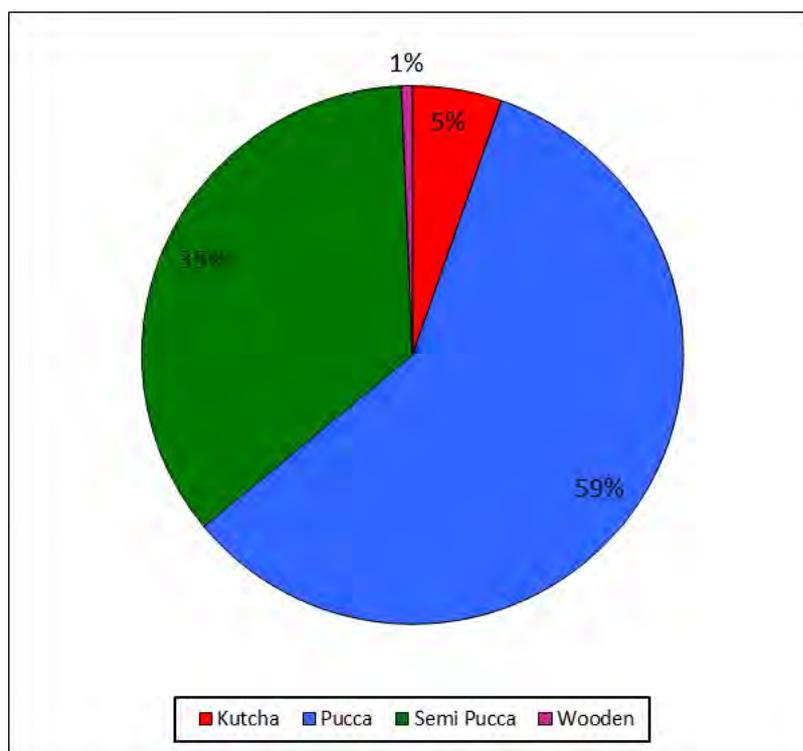


Figure 5.52 Housing structure of migrants in the South district of Sikkim

5.9.3 Basic facilities in the houses

Basic facilities mean minimum improvement and reasonable needful arrangements for the human being. Basic facilities in the houses refer to the minimum needs of the inhabitants being fulfilled in the house. Basic facilities in the house are conceptual matters, which varies from place to place or country to country. Basic facilities in the house depending on the standard of living of the people. In India, main basic facilities in the house are 1) Electricity facilities, 2) Drinking water facilities and 3) Sanitization facilities within the house. Compared to other places of India, the South district of Sikkim has also some varying nature in these basic facilities in houses of the district.

Table 5.60 Basic facilities in the house of sample migrants in the South district of Sikkim

Facilities	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Electricity	No	1	0.67	0.00	1.97
	Yes	149	99.33	98.03	100.00
Drinking water	No	47	31.33	23.91	38.76
	Yes	103	68.67	61.24	76.09
Sanitation	No	13	8.67	4.16	13.17
	Yes	137	91.33	86.83	95.84

Source: Household Survey, 2018

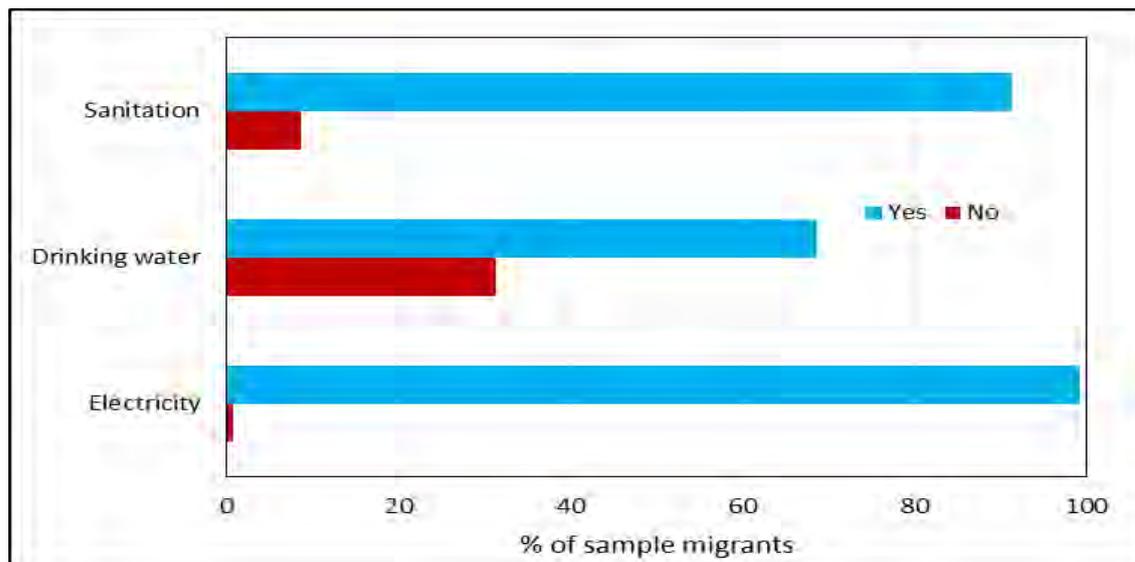


Figure 5.53 Basic facilities in the house of migrants in the South district of Sikkim

5.9.3.1 Electricity

Electricity facilities in the houses among the migrants of the South district of Sikkim are much developed compared to different districts of other states. Among the 150 respondents of the district, a maximum number of 149 respondents have availed the electricity facilities in their houses, which is 99.33% of the total migrants in the district. Only 1 respondent has no this kind of facility in the house, which is only 0.67% of the total migrants in the district. After the analysis of Table 5.60, it reveals that the South district of Sikkim is much developed in terms of electric facilities in the district.

5.9.3.2 Drinking water

Facilities of fresh drinking water in the houses are the fundamental needs of the people. Fresh and adequate drinking water is the fundamental right of the inhabitants. Though

the South district of Sikkim has mountainous terrain, so availability of water and its distribution to the house is much harder than other places. Among the migrants of the district, 103 numbers of respondents avail drinking water facilities in their houses, which is 67.67% of the total migrants of the district, whereas only 47 numbers of respondents do not avail these facilities in their houses (Figure 5.53). There are different issues in this regard, some of the migrants who live and work in the rural areas do not avail these facilities, some of the migrants who haven't earned adequate wages and who have living of standard below-average level. Though the area is mountainous, pumping and distribution of water are very costly and there are some scarcities of drinking water found in the dry season or tourist season.

5.9.3.3 Sanitation

Sanitation facilities in the house are the basic needs of the people for physical and mental health. The availability of sanitation in the house provides privacy, social welfare and healthy life of the members of the houses. So, it is the fundamental right of the people to avail this facility in the house. Among the migrants of the South district of Sikkim the sanitation facility is much better than other districts. 137 numbers of respondents are available sanitation facilities in their houses, which is 91.33% of the total migrants of the district, whereas only 13 numbers of respondents do not have this facility in their houses, which is only 8.67% of the total migrants of the district (Figure 5.53). These people who do not have sanitation facilities have faced some physical and mental health problems in their livelihood.

5.9.4 Basic facilities in the localities

Basic facilities refer to the basic needs of the residence of any place. It is the main reasonable performance of modern civilization. Basic facilities in the localities mean the availability of some activities which are needful for the residence of the localities or societal enhancement. Basic facilities in the localities include 1) solid waste management facility, 2) Garbage management facility and 3) Sewerage distribution facility. These facilities are one of the main tasks performed by the local authority to maintain society fresh and clean for the better and healthy livelihood of the residents of the area.

Table 5.61 Basic facilities in the localities of sample dwellers in the South district of Sikkim

Facilities	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Solid waste	No	97	64.67	57.02	72.32
	Yes	53	35.33	27.68	42.98
Garbage	No	85	56.67	48.74	64.60
	Yes	65	43.33	35.40	51.26
Sewerage	No	117	78.00	71.37	84.63
	Yes	33	22.00	15.37	28.63

Source: Household Survey, 2018

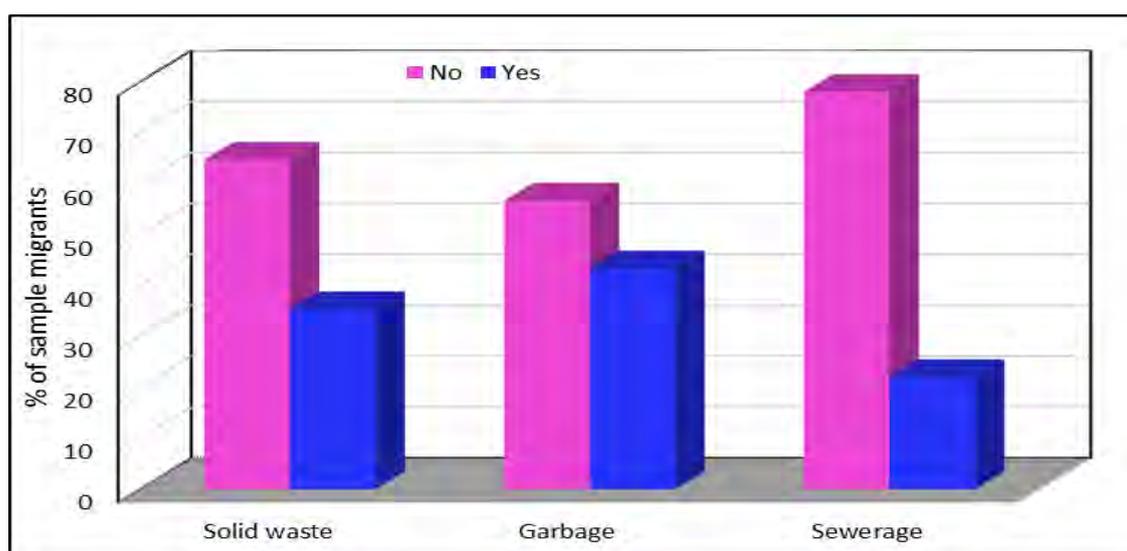


Figure 5.54 Basic facilities in the localities of migrants in the South district of Sikkim

5.9.4.1 Solid waste

Solid waste management facilities among the migrants of the South district of Sikkim are very poor in nature. A maximum number of respondents do not enjoy this facility within their localities. 97 numbers of respondents do not avail any kind of solid waste management facility in their locality, which is 64.67% of the total migrants of the district. Whereas, only 53 numbers of respondents enjoy this facility within their locality for their livelihood, which is only 35.33% of the total migrants of the district (Figure 5.54). So, after analysis, it can be said that the South district of Sikkim is very much underprivileged in this regard. Solid waste management, which is one of the basic facilities for the people, is not available by the migrants in the district.

5.9.4.2 Garbage

A garbage management facility is another most important need for the residence in the locality. The garbage management facility plays an important role in the physical and mental health of the residence and also societal health of the area. But, in the South district of Sikkim, this is a lack of service provided by the local authority. Migrants of the South district of Sikkim do not enjoy proper garbage management facilities in their daily life for the betterment of their livelihood. Among the migrants of the maximum district number of migrants does not have this facility in their locality. 85 numbers of respondents are unable to avail garbage management facility in their locality, which is 56.67% of the total migrants of the district. Whereas, only 65 numbers of respondents avail these facilities for their livelihood, which is 43.33% of the total migrants of the district (Figure 5.54). So, it can be said that the garbage management facility in the district is not so appreciable. The local authority deprives migrants of the district for the unavailability of this basic facility.

5.9.4.3 Sewerage

The sewerage system is one of the basic facilities in the locality. This facility provides the inter-connectivity network of the drain system of the area by which dirty or wastewater of the household passes through the pipeline to the treatment plants for the procurement of the society as well as the environment. South district of Sikkim is much weaker in the sense of this facility. Table 5.63 shows that migrants of the district are very deprived of this facility. 117 numbers of respondents, which are 78% of the total migrants of the district haven't enjoyed this facility in their locality or area. Only 33 numbers of respondents, which is 22% among the migrants of the district, avail this facility in their residential premises. Due to mountainous terrain and poor rate of transportation connectivity it is very much impracticable to maintain this facility all over the district. Though in the urban areas e.g., Namchi and Jorhang have a little better experience in this regard, due to infrastructural unavailability in the rural areas it is found very rundown. So, it can be said that the district has not availed basic facilities for livelihood.

5.9.5 Household amenities

Household amenities provide the scenario of the standard of living of the people in the area. Availability of the household amenities with their types and quality endow with the lifestyle or social status maintained by the residents of the area (Usha, 1998). All

the familiar types of amenities or products are present in the houses of migrants in the South district of Sikkim, but vary house to house as per their affordability. Migrants of the South district of Sikkim enjoyed a variety of amenities for their livelihood. 95.33% of the migrants in the district avail the mobile or android phone for their communication or their leisureliness. The use of other types of amenity's goods is very much unprivileged by the migrants in the district. Beyond the use of mobile maximum number of migrants use television for their amenities in the house, which is only 16% of the total migrants of the district, followed by geyser 10%, two-wheeler and computer both are occupying 6.67%, food processor 4.67% and availability of washing machine is only 2% among the total migrants of the district (Figure 5.55). After analysing Table 5.62, it is found that maximum numbers of migrants have mobile, which is used for different purposes, followed by television, which is the basic amenities in the houses in the recent process of civilization. Other types of amenities are not so frequently used by the migrants of the South district of Sikkim. It reveals that the economic conditions of the migrants in the district are not so considerable. They do not have adequate funds for their amenities after consumption for their livelihood and remittance to the family.

Table 5.62 Household amenities of sample dwellers in the South district of Sikkim

Assets	Categories	Frequency	Percentage	Lower bound on frequencies (95%)	Upper bound on frequencies (95%)
Television	No	126	84.00	78.13	89.87
	Yes	24	16.00	10.13	21.87
Car/Bike	No	140	93.33	89.34	97.33
	Yes	10	6.67	2.67	10.66
Food processor	No	143	95.33	91.96	98.71
	Yes	7	4.67	1.29	8.04
Washing machine	No	147	98.00	95.76	100.00
	Yes	3	2.00	0.00	4.24
Computer	No	140	93.33	89.34	97.33
	Yes	10	6.67	2.67	10.66
Geyser	No	135	90.00	85.20	94.80
	Yes	15	10.00	5.20	14.80
Mobile	No	7	4.67	1.29	8.04
	Yes	143	95.33	91.96	98.71
Inverter	No	142	94.67	91.07	98.26
	Yes	8	5.33	1.74	8.93

Source: Household Survey, 2018

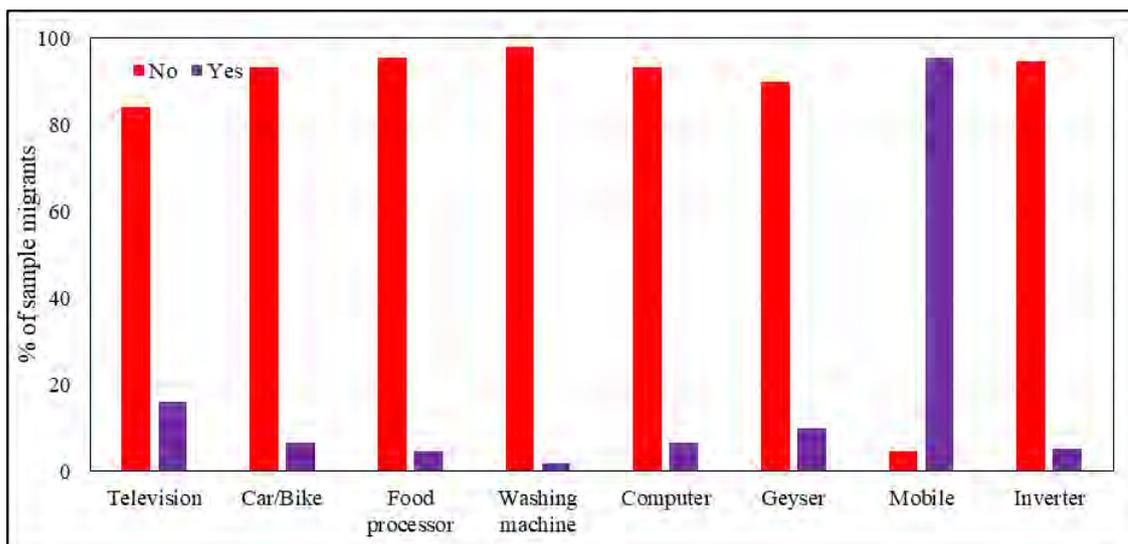


Figure 5.55 Household amenities of migrants in the South district of Sikkim

5.10 Socio Economic Index of the South district of Sikkim

In this section of the chapter, the socio-economic status of the migrants of the South district of Sikkim has been discussed in detail. Socio-economic status of the migrants of the district is depending on some factors related to socio-economic conditions of the migrants in the district. To find out the socio-economic status of the migrants in the district a self-developed index is constructed, which is the Socio-Economic Index (SEI). The result and analysis of calculation of SEI of the sample respondents among the migrants of the district are presented and discussed in detail.

5.10.1 Factors influencing Socio-Economic Index

The SEI is based on two indices, which are Social Index and Economic Index. A social index is calculated with the three variables, which are Health Index, Education Index and Demographic Index. On the other hand, Economic Index is the combination of Income Index, savings of money and loan or borrows of money by the migrants of the district. All the variables of the SEI have to discuss in detail in this part of the chapter (Appendix B.5).

5.10.1.1 Health Index (HI)

Firstly, the Social Index (SI) has to be discussed in this section. Social Index is the combination of Health Index (HI), Education Index (EDI) and Demographic Index (DI). One of the main variables of SI is HI. Health Index value of the respondents of the district ranges between $_0$ to $_1$. This index is a proportionate index, which means that lower index value considered poor health status, whereas higher index value

indicates better health conditions. The mean value of the Health Index of the respondents of the district is $\underline{0.46}$. 57.33% of the respondents are having the higher value of Health Index than the mean value, which shows the admirable health status is enjoyed by the migrants of the district. On the other hand, 42.67% of the respondents are having a lower Health Index value than the mean Health Index value (Appendix B.6a), which indicates the poor health status occupied by the migrants of the district.

5.10.1.2 Education Index (EDI)

Another important component of the Social Index is the Education Index (EDI). Education Index is also a self-developed index, which is prepared on the basis of education level, which is considered as the years of schooling of the respondents of the district. The value of Education Index ranges between $\underline{0}$ to $\underline{0.94}$ of the respondents of the district, where $\underline{0}$ indicates no formal education or no year or less than one year spent for schooling and the highest education level is 15, which means maximum years of schooling spent by the respondents. The mean value of the Education Index is $\underline{0.51}$. It is a proportionate index, which indicates higher value for higher education level and lower value for lower education level. 25.33% of the respondents are having the Education Index value lower than the mean value of EDI, which shows unprivileged education by the respondents of the area. On the other hand, 74.67% of the respondents are having a higher EDI value than the mean EDI value (Appendix B.6b), it indicates the better education adopted by the respondents of the district.

5.10.1.3 Demographic Index (DI)

Third and last component of the Social Index is Demographic Index (DI), which is also a self-developed index and constructed on the basis of the size of the family of the respondents. Size of the family indicates the number of family members living together in an individual household. Lowest family size among the respondents of the district is $\underline{1}$ and highest family size among the respondents is $\underline{12}$. The value of Demographic Index ranges between $\underline{0}$ to $\underline{1}$. This is a disproportionate index, which indicates higher index value as lower demographic status and vice-versa. The mean value of the Demographic Index of the respondents of the district is 0.08 . 85.33% of the respondents are having the lower index value than the mean index value indicates better demographic status and 14.67% of the respondents are having the higher index value than the mean index value indicates poor demographic status of the respondents of the district (Appendix B.6c). So, after the analysis of the DI, it is clear that the

demographic status of the migrants of the South district of Sikkim is much appreciable in the sense of size of the family.

5.10.1.4 Social Index (SI)

Social Index is constructed with the combination of Health Index, Education Index and Demographic Index. Social Index of the respondents of the district shows the social status of the migrants of the district. Value of the Social Index of the district ranges between 0 to 0.74 . It is a proportionate index, which indicates a higher value of Social Index with better social status of the respondents, whereas lower value of Social Index indicates improper social status of the respondents. The mean value of the Social Index of the migrants of the district is 0.35 . 58.67% of the respondents are having the higher Social Index value than the mean index value and 41.33% of the respondents are having lower Social Index value than the mean index value, which indicates that the 58.67% of the respondents are belonging to better social status in the district, whereas 41.33% of the respondents are not enjoyed a good social status for their livelihood (Appendix B.6d).

5.10.1.5 Income Index (INI)

Economic Index mainly based on Income Index along with the variables of availability of savings and necessity of loan by the respondents of the South district of Sikkim. Income Index is framed up with the help of monthly income of the migrants of the district. Highest monthly income of the respondents in the district is noticed Rs. 100000/-, whereas lowest monthly income among the respondents in the district is Rs. 2000/-. Based on this, a self-developed Income Index is prepared, which reveals the economic conditions of the migrants of the South district of Sikkim. In the South district, the value of the Income Index ranges between 0 to 1 . It is a proportionate index, which indicates higher index value with better economic status and lower value indicates poor economic status of the respondents in the district. The mean value of the Income Index is 0.12 . 4.67% among the respondents of the district maintain average economic conditions as per Income Index; they have the same mean value with concern Income Index. 72% of the respondents are having the Income Index value lower than the mean value, which reveals the poor economic conditions of the respondents of the district. On the other hand, only 23.33% respondents are having very good economic status, which have the Income Index value more than the mean index value (Appendix

B.6e). After analysing the Income Index, it is found that the economic conditions of the migrants in the South district of Sikkim are very unwelcome regarding Income Index.

5.10.1.6 Economic Index (EI)

To find out the economic status of the migrants of the South district of Sikkim, Economic Index is an absolute method, which reveals the proper economic conditions of the migrants in the district. Economic Index is a self-developed index, which has been framed up with the component of Income index and the availability of savings and necessity of the loan taken by the respondents of the district. The value of the Economic Index ranges between $_{-0}$ to $_{-1}$. This index is a proportionate index, which indicates higher value of Economic Index with better economic status of the respondents and lower value of Economic Index indicates sick economic conditions of the respondents of the district. The mean value of the Economic Index is $_{-0.38}$. Only 4% of the respondents of the district belong to the Economic Index value same as the mean Economic Index value, which indicates they have average economic status. 68.67% among the respondents are having the Economic Index value lower than mean index value, which shows the unfortunate economic status and 27.33% of the respondents are having the Economic Index value more than mean index value (Appendix B.6f), which indicates a vast number respondents have not enjoyed wealthy economic conditions in the district. So, it is found that the economic status of the migrants of the South district of Sikkim is facing some economic problems regarding their monthly income along with the necessity of savings and unavoidable conditions to take loan.

5.10.1.7 Socio Economic Index (SEI)

Socio-economic Index (SEI) is considered as a dependent variable, which is framed up with the help of two different independent variables. These two types of independent variables are quantitative variables and qualitative variables. Quantitative variables are those variables which are measurable by the numerical figures. Age, Monthly income, working days per week, working hours per day and savings are considered as quantitative variables for the study. On the other hand, Sex, Workplace, Education level, Occupation and Employment status are considered as qualitative variables for the SEI.

Socio-economic Index (SEI) is a self-developed index based on the Social Index and Economic Index. SEI reveals the socio-economic status of the migrants of the

South district of Sikkim. SEI of the respondents of the district is categorized into three-levels, which are High level, Medium level and Low level. High level of SEI is score more than ≥ 0.584 , Medium level of SEI ranges between ≥ 0.584 to ≥ 0.347 and Low level of SEI is scored below the ≥ 0.347 . 67 number of respondents, which is 35.26% among the total respondents of the district are enjoyed low-level socio-economic status, whereas 73 number of respondents, which is 38.42% of the total respondents are belonging to medium level of socio-economic status and only 10 number of respondents, which is only 5.26% of the total respondents are enjoying an appreciated socio-economic status (Table 5.63). Maximum numbers of migrants in the district are belonging to the medium to low level of socio-economic conditions for their livelihood. So, it is revealed that the socio-economic status of the migrants of the South district of Sikkim is in fortunate conditions.

Table 5.63 Level of Socio-Economic Index (SEI) of South District

Level	SEI	Number	Percentage
Low	< 0.347	67	35.26
Medium	$0.347 - 0.584$	73	38.42
High	> 0.584	10	5.26

5.11 Comparison of Socio-Economic conditions of in-migrants in East and South districts of Sikkim

Ho. *There is no significant mean difference between social status and economic status of in-migrants in the area of destination.*

Ho. *The socio-economic status of in-migrants is not dependent on demographic characteristics in the area of destination.*

Hypothesis: I A

Ho. *There is no significant mean difference between social status and economic status of in-migrants in the East district of Sikkim.*

Table 5.64 shows the result of the Independent t test (Two-tailed) applied to test the hypothesis (H0 1.a) that there is no significant mean difference between social status and economic status in the East district of Sikkim. The observed t value for the social index and economic index is -5.581 or 5.581 and critical t value (Two-tailed) is 1.966 with df 378 at 95% confidence level. Table 5.64 reveals that observed or calculated t value 5.581 is greater than critical or tabulated t value 1.966 and since its p - value $<$

0.0001 (Two-tailed) is less than alpha (α) value 0.05 (at 5% significance level). Hence, the null hypothesis is rejected and the alternative hypothesis is accepted. So, it is concluded that there is a significant mean difference between social status and economic status in the East district of Sikkim.

Table 5.64 Results of t test between Social Index and Economic Index of East district

Difference	-0.100
t (Observed value)	-5.581
t (Critical value)	1.966
DF	378
p-value (Two-tailed)	< 0.0001
Alpha	0.05

Hypothesis: I B

Ho. *There is no significant mean difference between social status and economic status of in-migrants in the South district of Sikkim.*

Table 5.65 illustrates the result of the Independent t test (Two-tailed) applied to test the hypothesis (H0 1.b) that there is no significant mean difference between social status and economic status in the South district of Sikkim. The observed t value for the social index and economic index is -1.621 or 1.621 and critical t value (Two-tailed) is 1.968 with df 298 at 95% confidence level. Table 5.65 reveals that observed or calculated t value 1.621 is less than critical or tabulated t value 1.968 and since its p - value 0.106 (Two-tailed) is greater than alpha (α) value 0.05 (at 5% significance level). Hence, the null hypothesis is accepted and the alternative hypothesis is rejected. So, it is concluded that there is no significant mean difference between social status and economic status in the South district of Sikkim.

Table 5.65 Results of t test between Social Index and Economic Index of South district

Difference	-0.035
t (Observed value)	-1.621
t (Critical value)	1.968
DF	298
p-value (Two-tailed)	0.106
Alpha	0.05

Hypothesis: II A

Ho. *The socio-economic status of in-migrants is not dependent on demographic characteristics in the East district of Sikkim.*

From the ANCOVA (Table 5.66) it is found that the value is 11.417 for the F-test statistic which is statistically significant at 5% level of significance. The multiple regression coefficients are not zero; all the coefficients have an impact on the independent variables. Since the coefficient of multiple determination is 0.731 that means the dependent variable 73 % explained by the independent variables.

The obtained F value is greater than the tabulated value at 5% level of significance. So, the Null hypothesis is rejected and the alternative hypothesis is accepted at 95% confidence level.

Hence, it can be interpreted that the socio-economic status of in-migrants is not dependent on demographic characteristics in the East district of Sikkim.

Table 5.66 Analysis of variance of Socio-Economic Index (SEI) of East district

Source	DF	Sum of squares	Mean squares	R ²	Adjusted R ²	F	Pr> F
Model	36	2.728	0.076	0.731	0.667	11.417	< 0.0001
Error	151	1.002	0.007				
Corrected Total	187	3.731					

Hypothesis: II B

Ho. *The socio-economic status of in-migrants is not dependent on demographic characteristics in the South district of Sikkim.*

From the ANCOVA, it is found that the value is 8.485 for the F-test statistic which is statistically significant at 5% level of significance. The multiple regression coefficients are not zero; all the coefficients have an impact on the independent variables. Since the coefficient of multiple determination is 0.642 that means the dependent variable 64% explained by the independent variables (Table 5.67).

The obtained F value is greater than the tabulated value at 5% level of significance. So, the Null hypothesis is rejected and the alternative hypothesis is accepted at 95% confidence level.

Hence, it can be interpreted that the socio-economic status of in-migrants is not dependent on demographic characteristics in the South district of Sikkim.

Table 5.67 Analysis of variance of Socio-Economic Index (SEI) of South district

Source	DF	Sum of squares	Mean squares	R ²	Adjusted R ²	F	Pr> F
Model	26	1.665	0.064	0.642	0.566	8.485	< 0.0001
Error	123	0.929	0.008				
Corrected Total	149	2.594					

5.12 Summary

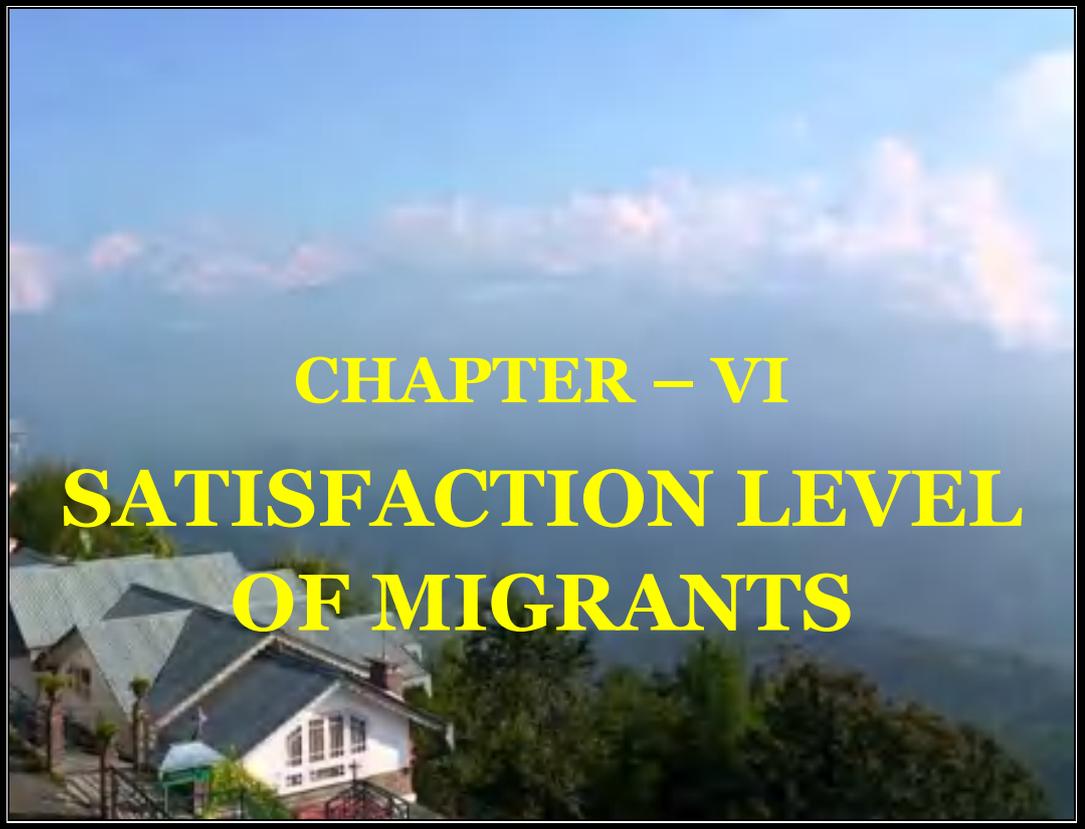
In this chapter, the researcher discussed the socio-economic conditions of migrants in East and South districts of Sikkim as well as their socio-economic status and standard of living. 340 respondents from said two districts have a wide variety of socio-economic conditions including their demographic structure, economic structure, and household structure. Maximum numbers of migrants in these districts are belonging to Hindu and Muslim communities. Among the Hindu community, large numbers of migrants are belonging to unreserved category. In the East district 65.26% of migrants are married, whereas, in the South district 57.33% of migrants are unmarried. 52.11% migrants of the East district have come from the state of West Bengal and in the South district it is 70.67%. 84.21% migrants of the East district having their formal education whereas, 82% migrants in the South district having their formal education. Average monthly income of migrants in the East district is Rs. 15015.79 and in South district average monthly income of migrants is Rs. 1435.34. Average annual savings amount by the migrants are Rs. 51977.03 and Rs. 18923.08 for East and South districts respectively. Migrants of the East district having the average loan amount of Rs. 76041.67 and Rs. 166822.22 is average loan amount having the migrants of South district. Whereas, only 24.21% migrants are loan borrowers in the East district and only 30% migrants are loan borrowers in the South district. 69.47% migrants of East district and 70% migrants of South district live in a rented house. 36.84% migrants in East district and 31.33% migrants of South district do not avail the fresh drinking water for their livelihood. 12.11% migrants of the East district haven't sanitation facilities in their houses, whereas 8.67% migrants of the South district also haven't this facility in their houses. Facilities regarding solid waste, garbage and sewage in the localities where migrants lived is very unexpected. In the East district 60.53%, 56.84% and 63.68% migrants do not benefit with solid waste, garbage and sewerage facilities respectively in their localities. Whereas, in case of South district, 64.67%, 56.67% and 78% migrants do not benefit from solid waste, garbage and sewerage facilities respectively in their localities.

This report clearly revealed that the migrants from the East and South districts of Sikkim have played a significant role in the Sikkim state in India. It has also been clear from their opinion that, in order to alleviate poverty and food shortages, they have migrated to East and South districts of Sikkim as a destination district in order to achieve a standard of living. Findings from the socio-economic conditions of migrants confirm that migrants are of deprived section in both districts.

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CHAPTER – VI
SATISFACTION LEVEL
OF MIGRANTS

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SATISFACTION LEVEL OF MIGRANTS

6.1 Introduction

Migration is a socio-economic (Debnath and Ray, 2016) and continuous unending process (Chandra and Paswan, 2019) that takes place because of push factors (forces a person to leave their native place and migrate to another place) or pull factors (attract people to come to a particular place), as well as due to dissatisfaction with their present livelihood status, people are migrating somewhere else to seek better opportunities in terms of employment, food security, protection (Shifa and Joseph, 2010). Due to inadequate job opportunities in their local area, people have to move from their native places to ensure a better life status (Yadav, 2019). Migrants are usually influenced by social disparity and may have diverse range of experiences in the migration process (Davies et al., 2006) that reflect their physical, mental and social status. Therefore, it is necessary to study the perception of migrants so that migrants can have equal social value in the community. Over the last few decades, it has been observed that the number of migrants has increased significantly at the international level (Tilahun et al., 2020). The present chapter especially focuses on the perception of the migrant labours about their satisfaction level of East and South districts of Sikkim. This chapter examines the effect of migration, in particular on migrant workers, on their variations of perception. It has been compared to the life satisfaction of the labour migrants of East and South Sikkim districts. In both districts, it has been found that most of the migrants experienced higher life satisfaction. In addition, this chapter provides an overview of the experience, perceived value and explores the level of satisfaction that gives prominence to issues such as how the migrants lead their lives in place of migration, co-operation and opportunity in their working fields. The present chapter also discusses the possible reasons for the migration to the hill state of India. Jaymangal and Balram mentioned in their study that in India for every minute 25-30 persons are migrating from rural areas to urban areas (Chandra and Paswan, 2019). Hence, the labour migration, in particular will promptly become a rising exigent aspect of globalization (Ramamurthy, 2003).

The present study tries to examine the factors influencing satisfaction level among in-migrants in the study area. satisfaction can be seen as a key measure of

perception of opinion of an individual. Existing research on satisfaction has primarily concentrated on explaining the satisfaction of in-migrants in the study area about their different socio-economic attributes.

Ha and Weber, 1994 in their —Residential quality and satisfaction: Toward developing residential quality indexes” described the development of a comprehensive measure of residential quality and to test the relationship between residential quality and satisfaction.

Davis and Schumm, 1987 in their article —Savings behaviour and satisfaction with savings: A comparison of low- and high-income group” proved that the satisfaction with savings is the output representing both a measure of the degree to which the family’s demand for savings has been met and Satisfaction with savings is dependent on a specific form of satisfaction level, which is in turn dependent on the household’s income and the competing motivations to spend and to save.

Gross National Happiness (GNH) Index of Bhutan, 2012 explains that an individual remains happy or not in their existing socio-economic conditions. There are 9 domains and 33 indicators have been taken into consideration. The nine domains are psychological wellbeing, health, time use, education, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience and living standards. This study emphasises on different aspects such as happiness, satisfaction, positive emotion such as joy and pride and negative emotion such as pain and worry. Domain psychological wellbeing includes 3 indicators such as life satisfaction, emotional balance and spirituality. Health domain includes self-reported health status, health days, long-term disability and mental health; Education domain includes literacy, educational qualification, knowledge and values. Another domain culture includes language, artisan skill and socio-cultural participations; domain time use considered working hours and sleeping hours; other domain good governance includes political participation, political freedom and service delivery and Government performance and domain of community vitality includes social support, community relationships, family and victim of crime; domain of ecological diversity and resilience such as pollution, environmental responsibility, wildlife and urban use and in domain of living standard includes household income, assets and housing quality.

In the context of ‘World Happiness Report’ prepared by Helliwell et al., 2012 adopted some external and personal variables of happiness. Among the more external variables, key determinants of happiness including income, work, community and governance and values and religion. Whereas among the more personal variables, key determinants including mental health, physical health, family experience, education, gender and age.

Joardar et al., 2017 in their article ‘Remittances and Happiness of Migrants and Their Home Households: Evidence Using Matched Samples’ discussed the study on in-migrants’ remittance has primarily focussed on its determinants, the motives to remit, the utilization of remittances and the impact of remittance on both the sending and receiving areas. They also analyse that remittance not only the monetary and non-monetary consequences of both sending and receiving remittances, but also both the in-migrants and the household of origin’s life satisfaction.

The perception of the respondent about migration’s satisfaction level revealed that most of the migrants were satisfied in their daily lives from working sector to till sleeping pattern. A significant number of migrants have expressed their positive views on migration status in both the district of South and East Sikkim, which can help to improve the economic condition of their households.

6.2 Database and Methodology

Primary data has been used to conduct this study. These data were collected through a household survey with a structured questionnaire (Appendix 1). Using a stratified random sampling technique, the household was selected and a significant number of 340 migrants (a total 190 households were selected in the East Sikkim district and a total 150 households were selected in the district of South Sikkim) households were interviewed (details of the sampling design have been discussed in chapter 1). Key informant interviews and non-participant observation techniques were used to measure the perception of the level of satisfaction (quality data) of migrants. Various measures have been applied to reveal the perception of migrants. Nowadays, the perception of pleasure or momentary mood (hedonic) has become very relevant (Braykara-krumme and Platt, 2016). Since the main objective of this study was to evaluate the perception of the migrants' satisfaction level, which is a qualitative measure and cannot be quantitatively evaluated, a five-point Likert scale was used in this study. American psychologist Rensis Likert formulated this Likert method in his doctoral thesis; these

multiple measures can also measure broader attitudes and values. Likert item has two parts one is ‘_Stem’ statement and another one is the ‘_response code’ (the answering options offered to respondents). The Likert scale is a composite, or ‘_battery’ of multiple Likert items; it refers to collection of multiple items (Johns, 2005). The term satisfaction level is a relative term, therefore quantifying the qualitative measure namely level of satisfaction of the migrants scaling technique is induced and the satisfaction level has been evaluated using this scaling technique. A self-created Satisfaction Level Index (SLI) was prepared to measure the satisfaction level of migrants. The researcher has calculated and converted the satisfaction level of 340 household migrants into an index. Satisfaction scores have been collected through scaling techniques and are systematically consolidated through a self-created satisfaction level index. SLI measures Physical and mental health satisfaction, remittance, calmness, happiness, sleeping pattern, the nervousness of the migrants.

6.3 Reliability Test of using Likert's Scale based on Cronbach's Alpha

The measurement of reliability of the used scale is the utmost important in multisets of responses. Cronbach's Alpha is a test of reliability strategy that requires only one single test administration provides a unique approximation of reliability for a given test. Cronbach's Alpha is the amount of reliability for which it is obtained for combinations of all items are possible if divided into two half-tests (Gliem and Gliem, 2003).

6.3.1 Methodology

Several researchers used Likert scales to analyse the internal consistency or reliability of the data (Gliem and Gliem, 2003). Cronbach's Alpha was adopted as the measurement of internal consistency reliability by many researchers. Internal consistency refers to the level of the interrelationship between the items, whereas homogeneity refers to the degree of a set of items (Green et al., 1977). The formula for Alpha given by Cronbach is shown below (Cronbach, 1951):

$$\alpha = \frac{n}{n-1} \left(1 - \frac{i \sum V_i}{V_t} \right) \dots\dots\dots 6.1$$

Where, n = the number of items,

V_i = the variance of the total scores and

V_t = the variance of the item scores

α = the mean of all possible split-half coefficients and the value expected when two random samples of items from a pool like those in the given test are correlated

Value level of reliability of the Cronbach's Alpha is given below (Hair et al., 2010):

Table 6.1 Cronbach's Alpha level of reliability

Level of Reliability	Cronbach's Alpha Score
Less Reliable	0.00 – 0.20
Rather Reliable	> 0.20 – 0.40
Quite Reliable	> 0.40 – 0.60
Reliable	> 0.60 – 0.80
Very Reliable	> 0.80 – 1.00

Form of evaluation made in the Likert's scale value of 1 to 5 denotes the individual opinion regarding their satisfaction level is categorised into the following details (Likert, 1932 and Johns, 2010):

Table 6.2 Five-point scales for measuring the satisfaction level

1	Very dissatisfied	More Negative
2	Dissatisfied	Negative
3	Neutral	Neutral
4	Satisfied	Positive
5	Very satisfied	More Positive
1	None of the time	More Negative
2	Little of the time	Negative
3	Some of the time	Neutral
4	More of the time	Positive
5	All of the time	More Positive

In the five-point scales, the researcher provides a degree that in-migrants are considered satisfied or dissatisfied in different parameters associated with their satisfaction level. If the score is above 3 it should be more satisfied, while the value is below 3 and is considered less satisfied. Results of validity and reliability test have been considered with a 0.05 significance level.

6.3.2 Analysis of reliability test of Cronbach's Alpha of East district of Sikkim

Cronbach's alpha reliability coefficient ranges typically between 0 to 1. Table 6.1 shows that Cronbach's Alpha's value in between 0.6 to 0.8 is reliable and below that it should be quiet and rather reliable. According to Cronbach's alpha coefficient, five-point Likert's scale adopted for the measures the level of satisfaction of in-migrants in the East district of Sikkim is reliable. It measures the internal consistency of the item in

the scales. Cronbach's alpha reliability coefficient for item 10 is 0.758, which becomes reliable, according to Cronbach's Alpha level of reliability.

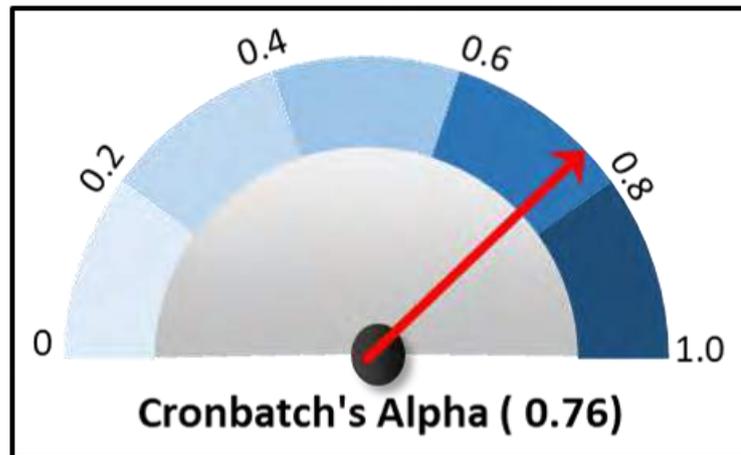


Figure 6.1 Cronbach's Alpha of the East district

Table 6.3 Item - analysis of Cronbach's Alpha of East district of Sikkim

Statistics for scales	N of Items	Mean	Variance	Std. Deviation
	10	34.1270	26.580	5.15553
Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Job satisfaction	30.8624	21.981	.420	.739
Remittance satisfaction	31.1905	21.261	.466	.732
Savings satisfaction	31.8095	22.634	.245	.770
Physical mental health satisfaction	30.6878	21.599	.517	.726
Sleep satisfaction	30.7566	21.728	.478	.731
Happiness	30.5926	20.902	.628	.711
Calmness	30.5979	23.071	.281	.759
Blueness	30.5185	21.474	.606	.716
Cheerless	30.3122	24.173	.190	.768
Nervousness	29.8148	22.247	.511	.729
Reliability coefficient for item 10	Cronbach's Alpha		N of Items	
	0.758		10	

Source: Household survey, 2018

Item-total statistics of the analysis of Cronbach's Alpha (Table 6.3) shows that all the items regarding the level of satisfaction are accurate or they have dependability. Statistics for scales are the summary statistics for the 10 items containing the scales.

Item means it is the summary statistics of 10 individual items. Item variance is the summary statistics of 10 individuals item variance. Item-total statistics section has four sub-sections, which are i) scale mean if item deleted, ii) scale variance if item deleted, iii) corrected item-total correlation and iv) Alpha if item deleted.

Scale Mean if item deleted is maximum for savings satisfaction which is 31.81 and minimum for nervousness, 29.81. Whereas, Scale variance, if item deleted, is highest for cheerless (24.17) and lowest for Happiness (20.90). Corrected item-total correlation ranges between 0.190 (Cheerless) to 0.628 (Happiness). This is the correlation of the item designated with the summated score for all other items. If item deleted is possibly representing the scale's Cronbach's alpha reliability coefficient for internal consistency if the individual item is removed from the scale. The values are then compared to the Alpha coefficient value at the bottom of the table to see if there is delete the item. Level of alpha value ranges from 0.711 to 0.770, which indicates that all the items are considered reliable with its internal consistency for the East district of Sikkim.

6.3.3 Analysis of reliability test of Cronbach's Alpha of South district of Sikkim

The level of satisfaction of in-migrants in the South district of Sikkim has also been measured with the five-point Likert scale. Cronbach's Alpha has been adopted to determine the reliability of the dependability of individual opinion of the sample migrants. Cronbach's alpha coefficient also measures the internal consistency of the item in the scales. Cronbach's alpha reliability coefficient for item 10 is 0.659 for the South district of Sikkim, which is reliable (Table 6.1).

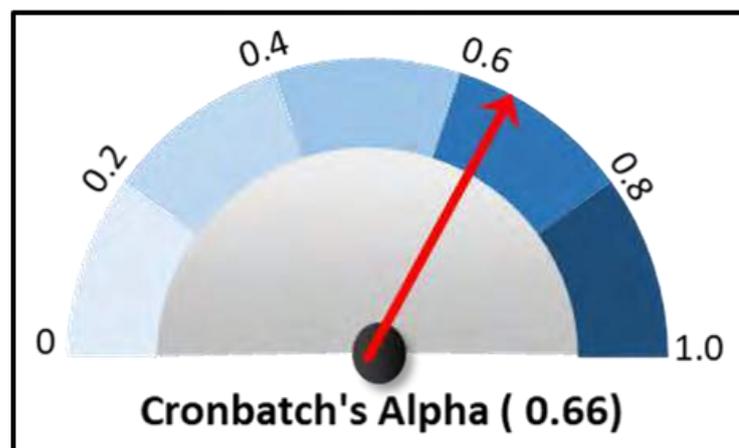


Figure 6.2 Cronbach's Alpha of the South district

Table 6.4 Item - analysis of Cronbach's Alpha of South district of Sikkim

Statistics for scales	N of Items	Mean	Variance	Std. Deviation
	10	34.7467	25.143	5.01432
Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Job satisfaction	31.3667	22.663	.191	.658
Remittance satisfaction	31.7200	20.579	.408	.618
Savings satisfaction	32.3533	21.089	.182	.676
Physical mental health satisfaction	31.4333	19.589	.521	.594
Sleep satisfaction	31.2200	21.220	.365	.627
Happiness	31.1667	18.543	.640	.567
Calmness	31.2533	21.560	.250	.650
Blueness	31.0467	19.830	.524	.596
Cheerless	30.6667	26.009	-.183	.717
Nervousness	30.4933	20.292	.433	.613
Reliability coefficient for item 10	Cronbach's Alpha		N of Items	
	0.659		10	

Source: Household survey, 2018

The item analysis of Cronbach's Alpha of South district is shown in Table 6.4. Scale Mean if item deleted is maximum for savings satisfaction which is 32.35 and minimum for nervousness, which is 30.49. Scale variance if item deleted denotes maximum for cheerless, (26.00) and minimum for Happiness (18.54). Corrected item-total correlation ranges between - 0.183 for Cheerless to 0.640 for Happiness. This is the correlation of the item designated with the summated score for all other items. If the item deleted possibly represents the scale of Cronbach's alpha reliability coefficient for internal consistency, the individual item is removed from the scale. The values are then compared to the Alpha coefficient value at the bottom of the table to see if there is delete the item. The level of alpha value ranges from 0.594 for physical and mental health, which is near to reliable to 0.717 for cheerless, which is perfectly reliable. This indicates that all the items are considered reliable with its internal consistency for the satisfaction level of the in-migrants of the South district of Sikkim.

In social sciences, individual attitudes, feelings, views, behaviours and imageries are generally measured using the Likert's scale. As individuals attempt to compute ideas that are not directly measurable, they sometimes use multiple-item scales and summated ratings to quantify interest construction. Cronbach's alpha

reliability coefficient for internal consistency of any individual has been determined by the accuracy of measurement of five-point Likert's scale. In conclusion, the level of satisfaction of in-migrants in the East and South districts of Sikkim is reliable with the Cronbach's alpha reliability coefficient for any individual's internal consistency.

A Chi-square test has been used in this chapter to find out the significant relationship of satisfaction level of migrants between East and South districts of Sikkim. This method reveals the test of the third hypothesis which has been analysed in this chapter.

An ANCOVA test has also performed. In the present chapter, some dependent (Composite Index of Satisfaction level) and independent (age-sex, monthly income, working days per week, savings, education, occupation, employment status) variables have been taken to test the analysis of covariance.

6.4 Migrant's satisfaction level in East district of Sikkim

6.4.1 Job satisfaction

The job satisfaction comprises various subscales satisfaction levels such as salary, working hours, working environment. A higher score reflected a higher satisfaction level (Zhang and Chai, 2020). The perception of the satisfaction level of the migrants measured through the 5-point Likert scale, ranging from very dissatisfied to very satisfied. That is why when it was asked about the satisfaction level of the migrants about their job opportunity, it was observed that nearly 46% of the migrants indicated that they were satisfied in their working sector, while 3.16% migrants were highly satisfied (Figure 6.3a). For those migrants who were dissatisfied for their Job-status 95% confidence interval ranged between 20.38 (upper bound frequencies) and 10.15 (lower bound frequencies) and as well as 5.26% responded that they were very dissatisfied with their job status (Table 6.5). In this district a significant number of migrants neutrally responded about the satisfaction level of their jobs.

Table 6.5 Migrant's job satisfaction in the East district of Sikkim

Likert scale	Job	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	10	5.26	2.09 - 8.44
2	dissatisfied	29	15.26	10.15 - 20.38
3	Neutral	58	30.53	23.98 - 37.07
4	Satisfied	87	45.79	38.71 - 52.87
5	Very satisfied	6	3.16	0.67 - 5.64

Source: Household Survey, 2018

6.4.2 Satisfaction with remittance

In this study, it was tried to explore also the remittances which influence migrants' happiness. Melkie and Abebaw had stated in their empirical study that remittance plays a significant role in simulating migrants' happiness (Tilahun et al., 2020). In addition, migrants' life satisfaction depends on receiving remittances, so when asked about the remittance pattern, 35.26% responded in East Sikkim that they were satisfied with their life satisfaction (Figure 6.3b). At 95% confidence interval for the category of satisfied ranges between 42.06 (upper bound frequencies) and 28.47 (lower bound frequencies) with the remittance system while only 1.58% migrants among the all the migrants indicated that they were very satisfied with the remittance system in the East district of Sikkim. A higher percentage, 29.47% and 7.37% of migrants expressed their dissatisfaction and highly dissatisfied feelings regarding the remittance system (Table 6.6). About 26.32% migrants responded neutrally about the remittance system of the district of East Sikkim.

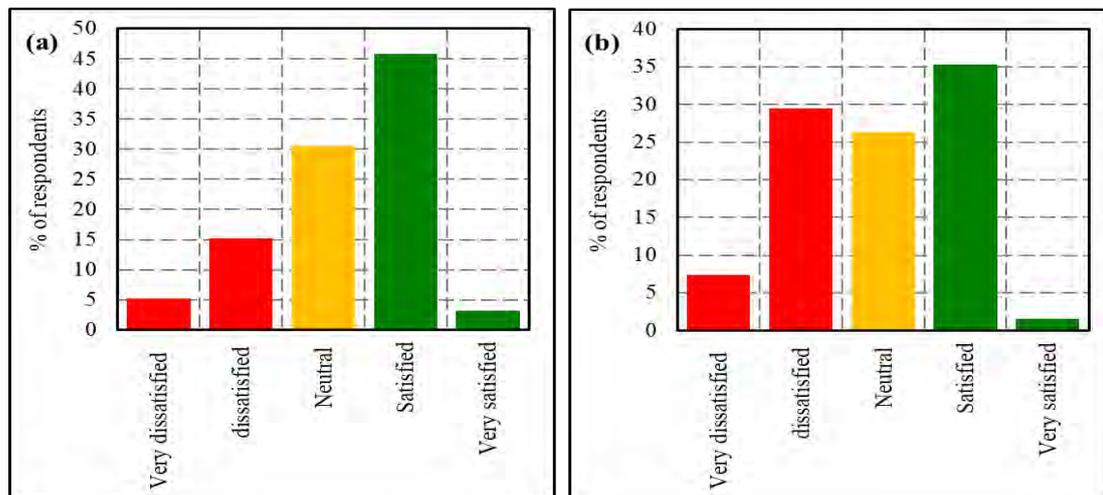


Figure 6.3 Migrant's satisfaction level of (a) Job and (b) Remittance in the East district of Sikkim

Table 6.6 Migrant's satisfaction with remittance in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	14	7.37	3.65 - 11.08
2	dissatisfied	56	29.47	22.99 - 35.96
3	Neutral	50	26.32	20.05 - 32.58
4	Satisfied	67	35.26	28.47 - 42.06
5	Very satisfied	3	1.58	0 - 3.35

Source: Household Survey, 2018

6.4.3 Satisfaction with saving

Savings behaviour of in-migrants in the district were also asked and about 72% of in-migrants said that they saved their money in different forms. When asked about their satisfaction level regarding savings, 37.57% and 25.93% in-migrants opined that they were dissatisfied and very dissatisfied respectively, 8.47% were satisfied and only 6.35% were very satisfied with their ensued savings (Table 6.7 and Figure 6.4). Among the in-migrants who saved their earning, 52% indicated that they were saving money to buy or build a house, 38% stated that they were saving for their children's education, 33% were saved money aside to buy land in their place of origin and 21.7% have saving to start or expand a business in their homeland.

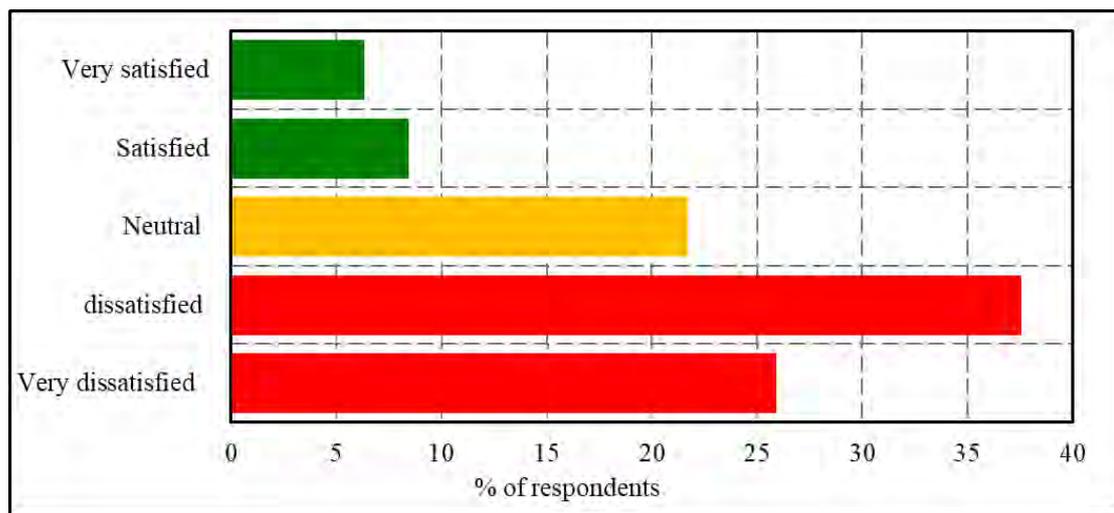


Figure 6.4 Migrant's satisfaction level about savings

Table 6.7 Migrant's satisfaction with savings in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	49	25.93	19.68 - 32.17
2	dissatisfied	71	37.57	30.66 - 44.47
3	Neutral	41	21.69	15.82 - 27.57
4	Satisfied	16	8.47	4.5 - 12.43
5	Very satisfied	12	6.35	2.87 - 9.83

Source: Household Survey, 2018

6.4.4 Satisfaction with physical and mental health

In addition to the separation of husband and wife from children, immigrants may suffer in terms of their mental health due to their work and living conditions (Faaliyat et al., 2020). Migrants poor emotional state, in turn, can affect their ability to be productive in the workplace. In addition, in-migrants generally face a variety of problems with their

right to health. It often happened that unregistered in-migrants were denied access to public health services (Davies et al., 2006).

Hence, in-migrants of East district of Sikkim were asked to explore how they feel about their physical and mental health. However, respondents were asked about their self-reported physical and mental health. About 48.95% respondents opined their satisfied feelings regarding their physical and mental health. While only 6.84% responded they are very satisfied about their physical and mental health. About 14.74% and 1.58% respondents feel dissatisfied and very dissatisfied about their physical and mental health respectively. Among the respondents 27.89% did not share their feelings about the physical and mental health and they considered as neutral.

Table 6.8 Migrant’s satisfaction with physical and mental health in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	3	1.58	0 - 3.35
2	dissatisfied	28	14.74	9.7 - 28.285
3	Neutral	53	27.89	21.52 - 53.535
4	Satisfied	93	48.95	41.84 - 93.935
5	Very satisfied	13	6.84	3.25 - 13.135

Source: Household Survey, 2018

6.4.5 Satisfaction with sleep

Based on the calculation of the data, a significant percentage of migrants (41.05%) were satisfied with their sleep patterns (Figure 6.5b) with a 95% Confidence Interval of 34.06-48.05%. Only 7.89% of migrants responded very satisfied with their sleep patterns in the East district of Sikkim. About 2.63% and 13.68% of migrants felt very dissatisfied and satisfied, respectively, while 34.74% of migrants responded neutrally to their sleep patterns in the East Sikkim district (Table 6.9).

Table 6.9 Migrant’s satisfaction with sleep in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	5	2.63	0.36 - 4.91
2	dissatisfied	26	13.68	8.8 - 18.57
3	Neutral	66	34.74	27.97 - 41.51
4	Satisfied	78	41.05	34.06 - 48.05
5	Very satisfied	15	7.89	4.06 - 11.73

Source: Household Survey, 2018

6.4.6 Migrants' happiness

Very few of the migrants who had in-migrated to the East district of Sikkim responded that they were not happy. Only 0.53% and 11.05% respondents indicated that they were happy none of the time and little of the time, respectively (Figure 6.5c). Whereas most of them said that they enjoyed a lot with 11.58% (all the time), 42.63% (most of the time) and 34.21% (sometimes) of migrants responded about how happy they felt in the East District (Table 6.10).

Table 6.10 Migrant's happiness in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	None of the time	1	0.53	0 - 1.56
2	Little of the time	21	11.05	6.59 - 2.51
3	Some of the time	65	34.21	27.46 - 3.96
4	Most of the time	81	42.63	35.6 - 4.66
5	All of the time	22	11.58	7.03 - 5.13

Source: Household Survey, 2018

6.4.7 Migrants' calmness

Migrants who came to seek a better standard of living in the East Sikkim district were also asked about their calmness, and according to their feedback, the majority of migrants, 45.26%, 13.16%, and 24.74%, felt calm most of the time, all the time, and some of the time (Figure 6.5d). Only 1.58% said that they didn't feel calm at any time. Little by little, almost 15.26% of migrants among all migrants responded to their feelings of calmness (Table 6.11).

Table 6.11 Migrant's calmness in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	None of the time	3	1.58	0 - 3.35
2	Little of the time	29	15.26	10.15 - 29.295
3	Some of the time	47	24.74	18.6 - 47.475
4	Most of the time	86	45.26	38.19 - 86.865
5	All of the time	25	13.16	8.35 - 25.255

Source: Household Survey, 2018

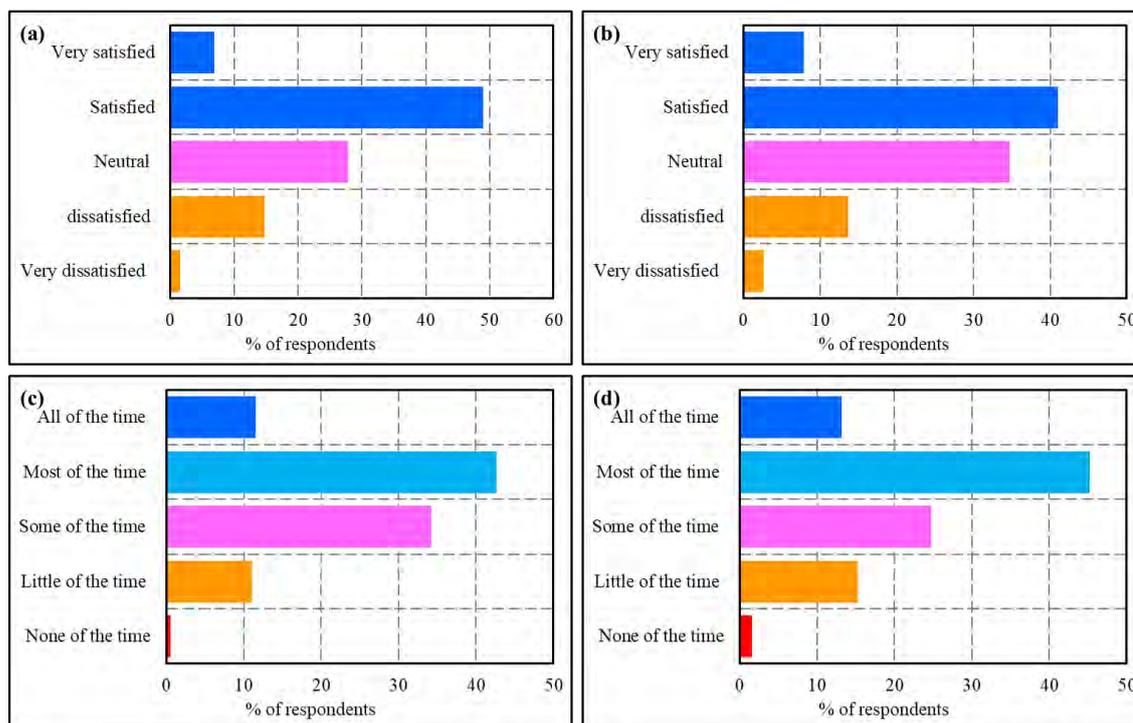


Figure 6.5 Migrant’s satisfaction level of (a) Physical and mental health (b) Satisfaction with sleep (c) Happiness and (d) Calmness in the East district of Sikkim

6.4.8 Migrants’ blueness

Most migrants answered (about 60%) of their blueness for a short time with bound of 53.03 – 66.97 at 95% confidence interval, while 6.32% of migrants indicated blueness none of the time (Figure 6.6a). Interestingly, none of them among all the migrants was already blue all the time. About 22.63% and 10% of migrants reported their blueness for some of the time and most of the time respectively in the East Sikkim district (Table 6.12).

Table 6.12 Migrant’s blueness in the East district of Sikkim

Likert scale	Level	No. of respondents	% of respondent	95% CI
1	None of the time	12	6.32	2.86 - 9.77
2	Little of the time	114	60	53.03 - 66.97
3	Some of the time	43	22.63	16.68 - 28.58
4	Most of the time	19	10	5.73 - 14.27
5	All of the time	2	1.05	0 - 2.5

Source: Household Survey, 2018

6.4.9 Migrants' cheerless

In terms of cheerless, at 95% confidence interval ranges between 13.84-25.10, 46.59-60.77, 10.60-20.97 and 6.59-15.51 for none of the time, little of the time, some of the time and most of the time, respectively (Table 6.13). The true population mean follows between the lower bound and upper bound confidence level. Whereas 19.47% and 53.68% indicated that none of the time and a very little of the time they were cheerless which revealed that they were cheerful in maximum time (Figure 6.6b). It is all seen that none of selected migrants was cheerless for all of the time.

Table 6.13 Migrant's cheerless in the East district of Sikkim

Likert scale	Cheerless	No. of responders	% of respondents	95% CI
1	None of the time	37	19.47	13.84 - 25.1
2	Little of the time	102	53.68	46.59 - 60.77
3	Some of the time	30	15.79	10.6 - 20.97
4	Most of the time	21	11.05	6.59 - 15.51
5	All of the time	0	0	0

Source: Household Survey, 2018

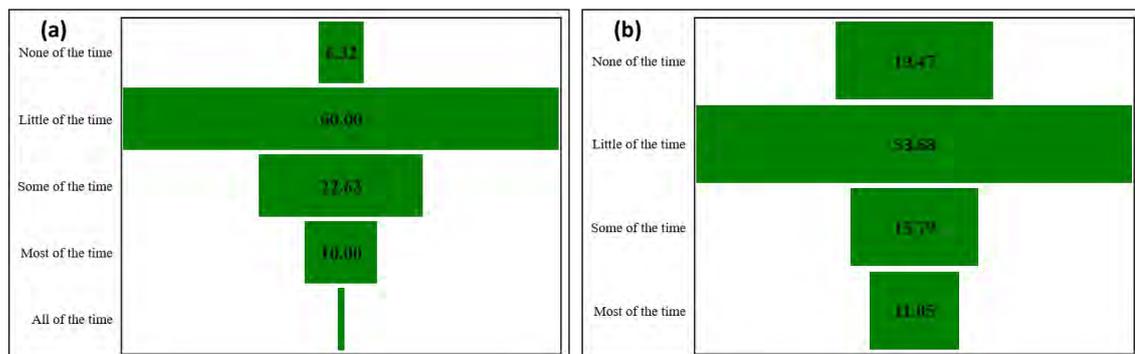


Figure 6.6 Migrant's satisfaction level of (a) Blueness and (b) Cheerless in the East district of Sikkim

6.4.10 Migrant's nervousness

With the help of a 5-point Likert scale, the present researcher tried to explore the opinions of migrants about their nervousness. Half of the total migrants (50%) said they never felt nervousness, and about 31% migrants responded that they felt nervousness for a little while (Figure 6.7). In contrast, none of the sample migrants of the East district of Sikkim felt nervousness in case of most of the time and all of the time. At 95% confidence interval for mean nervousness among migrants who (18.95% migrants)

felt nervous for some time ranges between 13.38 (lower bound frequency) and 24.52 (upper bound frequency) (Table 6.14).

Table 6.14 Migrant’s nervousness in the East district of Sikkim

Likert scale	Nervous	No. of respondents	% of respondents	95% CI
1	None of the time	95	50	42.89 - 57.11
2	Little of the time	59	31.05	24.47 - 37.63
3	Some of the time	36	18.95	13.38 - 24.52
4	Most of the time	0	0	0
5	All of the time	0	0	0

Source: Household Survey, 2018

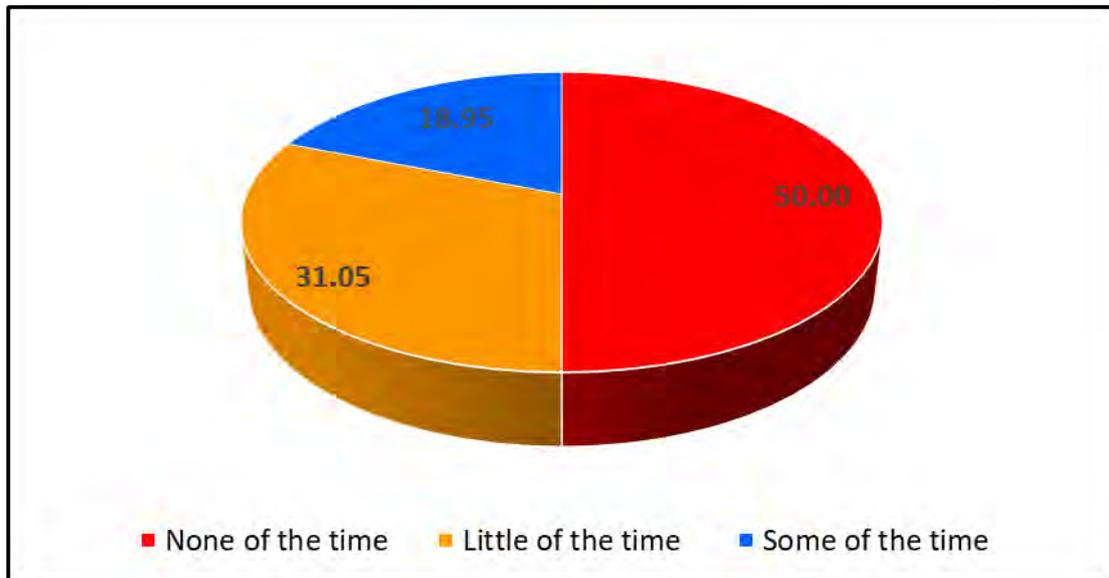


Figure 6.7 Migrant’s nervousness level in the East district of Sikkim

6.4.11 Adaptation level

Migrants in the East district were asked how they were willing to adopt a new language. Among the total number of migrants, 90% with a bound 85.73 – 94.27% at 95% confidence interval replied that they had adapted Nepali language. Only 10% indicated that they did not adopt a new language in the East district as the duration of the migration period in this study area is too short (Table 6.15). Moreover, as the language of the East district is new to them and hence, their interest in adopting a new language is lower (Figure 6.8a).

Table 6.15 Migrants adaption to learning a new language in the East district

Response	No. of respondents	% of respondents	95% CI
No	19	10	5.73 - 14.27
Yes	171	90	85.73 - 94.27

Source: Household Survey, 2018

In terms of obedience to new laws and regulations in the East Sikkim district, it is bound that the average response that all migrants maintain new laws and rules is between 70.84% and 82.84% at 95% confidence interval (Table 6.16). By considering sample mean 76.84% indicated that they were complying with new laws and regulations, while 23.16% indicated that they were not complying with new laws and regulations (Figure 6.8b).

Table 6.16 Migrants adaption to obeying new laws and rules in the East district

Response	No. of responders	% of respondents	95% CI
No	44	23.16	17.16 - 29.16
Yes	146	76.84	70.84 - 82.84

Source: Household Survey, 2018

About 59.47% indicated that they did not adapt to the habituation of local food in the East district, while 40.53% of migrants responded to their adaptation to the local food system in the East District (Figure 6.8c). At 95% confidence level of the lower bound frequency for adaptation to the local food item ranges from 33.55 (lower bound frequency) to 47.51 (upper bound frequency level). In addition to those migrants who have not been accustomed to the local food system, the confidence interval ranges from 52.49 (lower bound frequency) to 66.45 (upper bound frequency) for the 95% confidence level (Table 6.17).

Table 6.17 Migrants adaption to getting accustomed to the local food in the East district

Response	No. of responders	% of respondents	95% CI
No	113	59.47	52.49 - 66.45
Yes	77	40.53	33.55 - 47.51

Source: Household Survey, 2018

Religion is a socio-cultural system in which human beings believe and worship superhuman control power, especially personal gods or goddesses (Baucal & Zittoun, 2013). At the time of the interviews, it was found that most of the cases, everyone

wanted to keep their faith in their religion, which they had been following since their early days. Thus, after collecting the data, at the time of analysis, we observed that very few migrants, only 4.76% migrants, showed their willingness to change their religion in the East District, and except for the few, most of them said that they had no respect for changing their religion (Table 6.18 and Figure 6.8d).

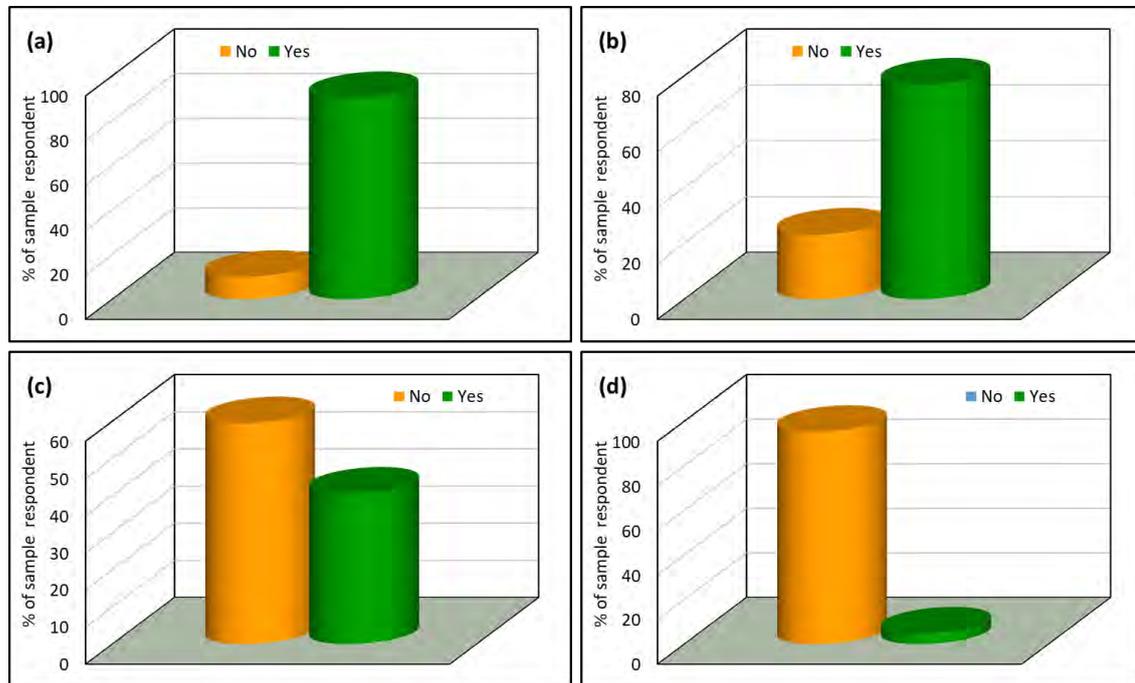


Figure 6.8 Migrant’s adaptation level of (a) Learning a new language (b) Obeying new laws and rules (c) getting accustomed to the local food and (d) Changing religion in the East district of Sikkim

Table 6.18 Migrants no willing to Changing religion in the East district

Response	No. of responders	% of responders	95% CI
No	180	95.24	92.2 - 98.27
Yes	9	4.76	1.73 - 7.8

Source: Household Survey, 2018

The view of migrants who had migrated to the East District was asked about their willingness to give up their local identity in the area of origin. After collecting their opinions and analysing the data, it was observed that 92.06% of migrants responded that they did not agree to give up their local identity in the area of origin and that only a few, 7.94%, said they were willing to give up local identity in the area of origin because they found a good job from where they could earn a lot of money, and they also started to love the natural environment of the East district of Sikkim (Table 6.19 and Figure 6.9a).

Table 6.19 Migrants not willing to Giving up local identity in the place of origin of East district

Response	No. of respondents	% of responders	95% CI
No	174	92.06	88.21 - 95.92
Yes	15	7.94	4.08 - 11.79

Source: Household Survey, 2018

When asked to the migrants about their marrying tendency to someone who was belonging to East Sikkim district, a higher percentage of migrants reported that 86.77% were not willing to marry someone who belonged to East Sikkim district because they had to go back to their permanent resident as well as they expressed more interest to their community in the local area for their marriage purpose and 13.23% migrants showed their interest to marry someone who belongs to East Sikkim district (Table 6.20 and Figure 6.9b).

Table 6.20 Migrants not willing to marry someone who belongs to Sikkim in the East district

Response	No. of responder	% of responders	95% CI
No	164	86.77	81.94 - 91.6
Yes	25	13.23	8.4 - 18.06

Source: Household Survey, 2018

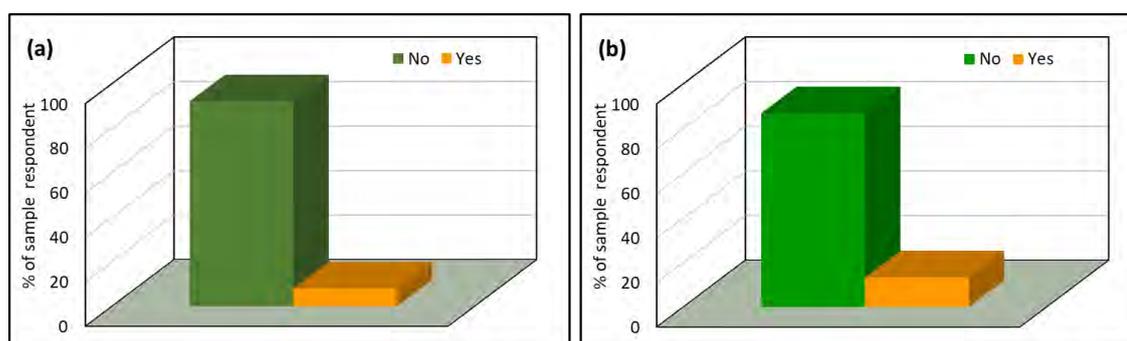


Figure 6.9 Adaptation of migrants“ (a) Not willing to Giving up local identity in the place of origin (b) Not willing to marrying someone who belongs Sikkim

6.4.12 Opinion about migration

About 46.84% of respondents opined that they are in favour of in-migration to the East Sikkim district, whereas 22.63% indicated that they partly support this opinion and about 18.95% responded that peoples should not migrate to this district whatsoever

(Figure 6.10). Although 11.58% of migrants replied they have no say about this opinion (Table 6.21).

Table 6.21 Opinion about migrant to the East district of Sikkim

Response	No. of respondents	% of responders	95% CI
Yes	89	46.84	39.75 - 53.94
Partly	43	22.63	16.68 - 28.58
No	36	18.95	13.38 - 24.52
Don't know	22	11.58	7.03 - 16.13

Source: Household Survey, 2018

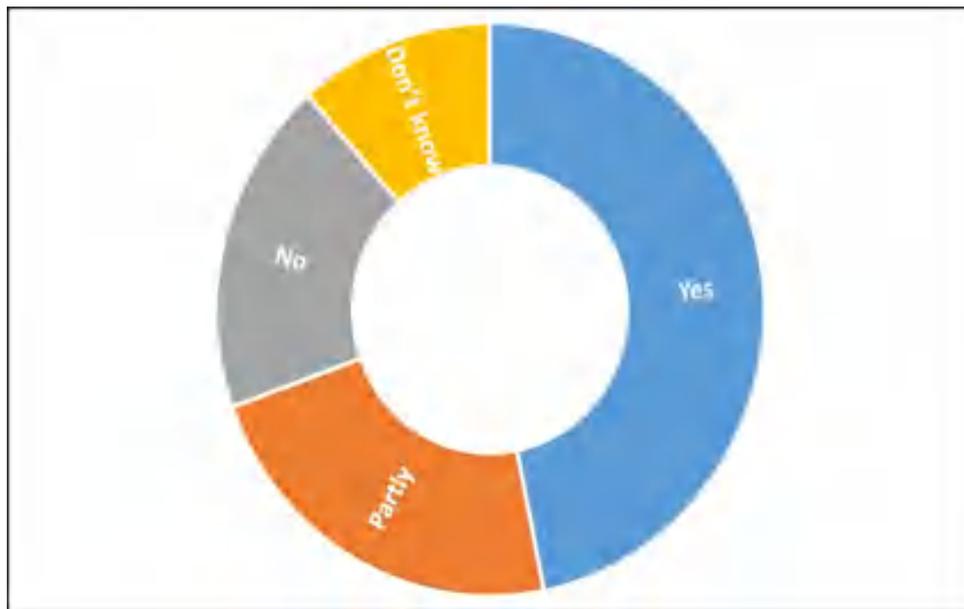


Figure 6.10 Opinion about migration to the East district of Sikkim

6.5 Migrant's satisfaction level in the South district of Sikkim

6.5.1 Job satisfaction

Job satisfaction and the depressive mood of migrants are negatively interrelated (Zhang and Chai, 2020). Migrants' mood of happiness or depressive mood depends on their level of job satisfaction. Using the 5-point Likert scale, it has been interpreted to reveal their perception of the level of satisfaction with their job. In the case of the South district of Sikkim, when the researcher asked about the level of satisfaction in their job sector, it found different feedback from the respondents (Table 6.22). Among them, 44% selected migrants said they were satisfied in their job sector. About 11.33% responded that they were very satisfied with their present job. Besides, 29.33% of migrants have expressed their neutral opinion on the employment sector. A remarkable percentage, 18% expressed their dissatisfaction with the present job, and only

1.33% responded that they were very dissatisfied with their job, but did not mention why they were dissatisfied with their job (Figure 6.11a).

Table 6.22 Migrant’s job satisfaction in the South district of Sikkim

Likert scale	Level	No. of responders	% of responders	95% CI
1	Very dissatisfied	2	1.33	0 - 3.17
2	dissatisfied	27	18	11.85 - 24.15
3	Neutral	44	29.33	22.05 - 36.62
4	Satisfied	66	44	36.06 - 51.94
5	Very satisfied	11	7.33	3.16 - 11.51

Source: Household Survey, 2018

1

6.5.2 Satisfaction with remittance

With regard to migration, remittances are explained as one of the key factors of influence that are strongly linked to economic growth and development (Joarder et al., 2016). The satisfaction level of migrants with remittance is presented in a Pareto chart (Figure 6.11b). At 95% confidence interval for the category satisfied with the remittance system ranges from 53.98 (upper bound frequencies) to 27.68 (lower bound frequencies), accounting for 35.33% of all migrants, while only 2.67% migrants responded to their very satisfaction feelings with the remittance pattern (Table 6.23). Consistently, it was also evident that a significant number of migrants, 27.33% were dissatisfied with the remittance system and 5.33% indicated that they were highly dissatisfied and 29.33% reacted neutrally to the remittance system in the district of South Sikkim.

Table 6.23 Migrant’s satisfaction with remittance in the South district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	8	5.33	1.74 - 8.93
2	dissatisfied	41	27.33	20.2 - 41.47
3	Neutral	44	29.33	22.05 - 44.62
4	Satisfied	53	35.33	27.68 - 53.98
5	Very satisfied	4	2.67	0.09 - 4.24

Source: Household Survey, 2018

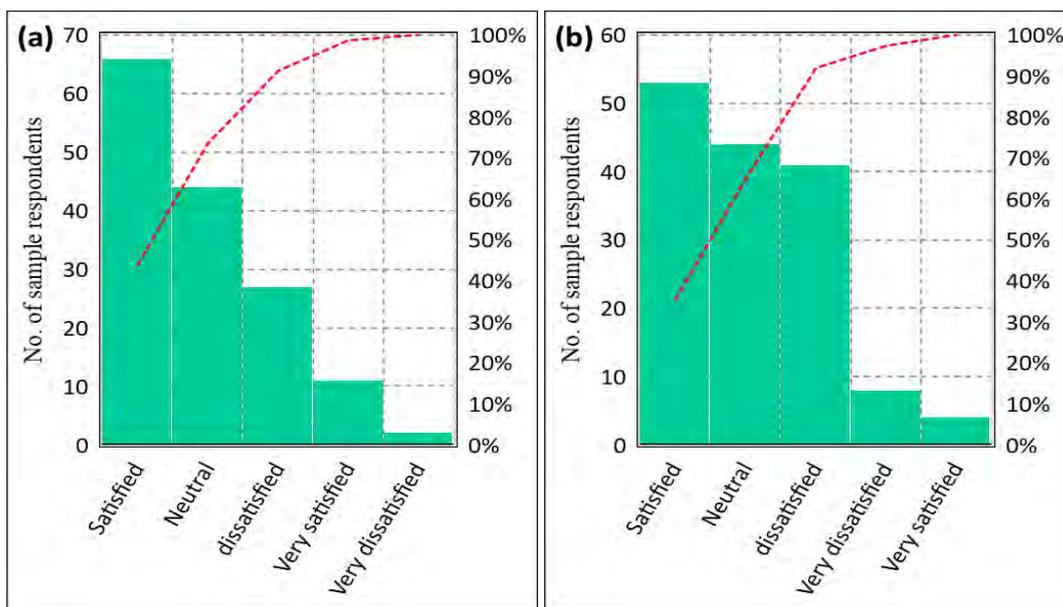


Figure 6.11 Pareto chart of migrant’s satisfaction level of (a) Job and (b) Remittance in the South district of Sikkim

6.5.3 Satisfaction with Saving

Migrants were asked about their level of satisfaction with their saving status in the South Sikkim district. However, after analysing the data, it was clear that 40.67% of migrants responded that they were dissatisfied with saving patterns, and it was also clear that 28% expressed very dissatisfaction with saving patterns. About 9% responded to a neutral condition. Only 8% and 14% of migrants indicated that they were satisfied and very satisfied with their savings, respectively (Table 6.24 and Figure 6.12).

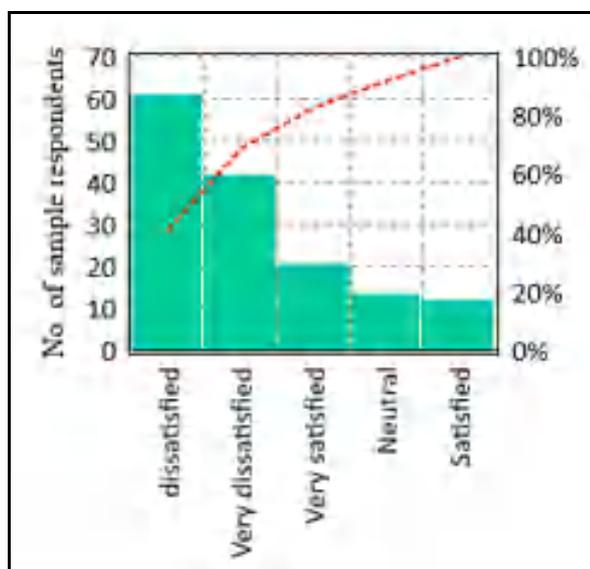


Figure 6.12 Pareto chart of migrant's satisfaction level about savings of South district of Sikkim

Table 6.24 Migrant’s satisfaction with savings in the South district of Sikkim

Likert scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	42	28	20.81 - 35.19
2	dissatisfied	61	40.67	32.81 - 48.53
3	Neutral	14	9.33	4.68 - 13.99
4	Satisfied	12	8	3.66 - 12.34
5	Very satisfied	21	14	8.45 - 19.55

Source: Household Survey, 2018

6.5.4 Satisfaction with physical and mental health

The migrant respondents were also asked about the physical and mental health in the South district of Sikkim. Although a significant number of migrants, 42% and 8% responded that they were satisfied and very satisfied, respectively with their physical and mental health (Table 6.25). However, a larger number of migrants also expressed their views that they were not satisfied because some of them had missed their spouses, some of them had missed their children, some of them had feel about their parents. About 26% of respondent migrants said they were neutral, while 20% said they were dissatisfied with their physical and mental health, and almost 4% of migrants responded to their dissatisfied feelings in the district of South Sikkim (Figure 6.13a).

Table 6.25 Migrant’s satisfaction with physical and mental health in the South district of Sikkim

Rating Scale	Level	No. of respondents	% of respondents	95% CI
1	Very dissatisfied	5	3.33	0.46 - 6.21
2	dissatisfied	30	20.0	13.6 - 26.4
3	Neutral	40	26.67	19.59 - 33.74
4	Satisfied	63	42.0	34.1 - 49.9
5	Very satisfied	12	8.0	3.66 - 12.34

Source: Household Survey, 2018

6.5.5 Satisfaction with Sleep

In the South Sikkim district, it was asked about the satisfaction level of sleep to the selected migrants. More than half of the total migrants mentioned that they were satisfied and very satisfied with their sleeping status accounting for 34% and 15.33% respectively. About 40.67% migrants expressed their neutral feelings about their sleep patterns and were not too good or too bad, which means that they reacted neutrally.

Whereas only 2% replied that they were very dissatisfied and 8% migrants responded to their dissatisfaction with their sleep patterns (Table 6.26 and Figure 6.13b).

Table 6.26 Migrant’s satisfaction with sleep in the South district of Sikkim

Likert scale	Level	No. of respondents	% of respondent	95% CI
1	Very dissatisfied	3	2.0	0 - 4.24
2	dissatisfied	12	8.0	3.66 - 12.34
3	Neutral	61	40.67	32.81 - 48.53
4	Satisfied	51	34.0	26.42 - 41.58
5	Very satisfied	23	15.33	9.57 - 21.1

Source: Household Survey, 2018

6.5.6 Satisfaction with Happiness

When asked how happy the migrants were in the South Sikkim district, 19.33% of the total migrants said they were happy all the time and 35.33% said they were happy most of the time. But 32.67% said that some of the time they were happy. Only nearly 10% and 4% of migrants said they were happy little of the time and very few percentages, 3.33% said they thought they were never happy in the South Sikkim district (Table 6.27 and Figure 6.13c). From the data, it was very clear that most migrants were happy with the maximum time in the district of South Sikkim.

Table 6.27 Migrant’s happiness in the South district of Sikkim

Likert scale	Happy	No. of responders	% of responders	95% CI
1	None of the time	5	3.33	0.46 - 6.21
2	Little of the time	14	9.33	4.68 - 13.99
3	Some of the time	49	32.67	25.16 - 40.17
4	Most of the time	53	35.33	27.68 - 42.98
5	All of the time	29	19.33	13.01 - 25.65

Source: Household Survey, 2018

6.5.7 Satisfaction with Calmness

At 95% confidence interval, the upper bound frequency is 55.32, and the lower bound frequency is 39.34 for the category of migrants who have been most time calm. For migrants who have been calm all the time, the upper bound and lower bound frequency ranges between 18.77 and 7.89. A very small number of migrants, 5.33% responded that they were not calm at all. Only 14% and 20% indicated that they were calm little of

the time and some of the time in the district of South Sikkim (Table 6.28 and Figure 6.13d).

Table 6.28 Migrant’s calmness in the South district of Sikkim

Likert scale	Level	No. of responders	% of respondents	95% CI
1	None of the time	8	5.33	1.74 - 8.93
2	Little of the time	21	14	8.45 - 21.55
3	Some of the time	30	20	13.6 - 30.4
4	Most of the time	71	47.33	39.34 - 71.32
5	All of the time	20	13.33	7.89 - 20.77

Source: Household Survey, 2018

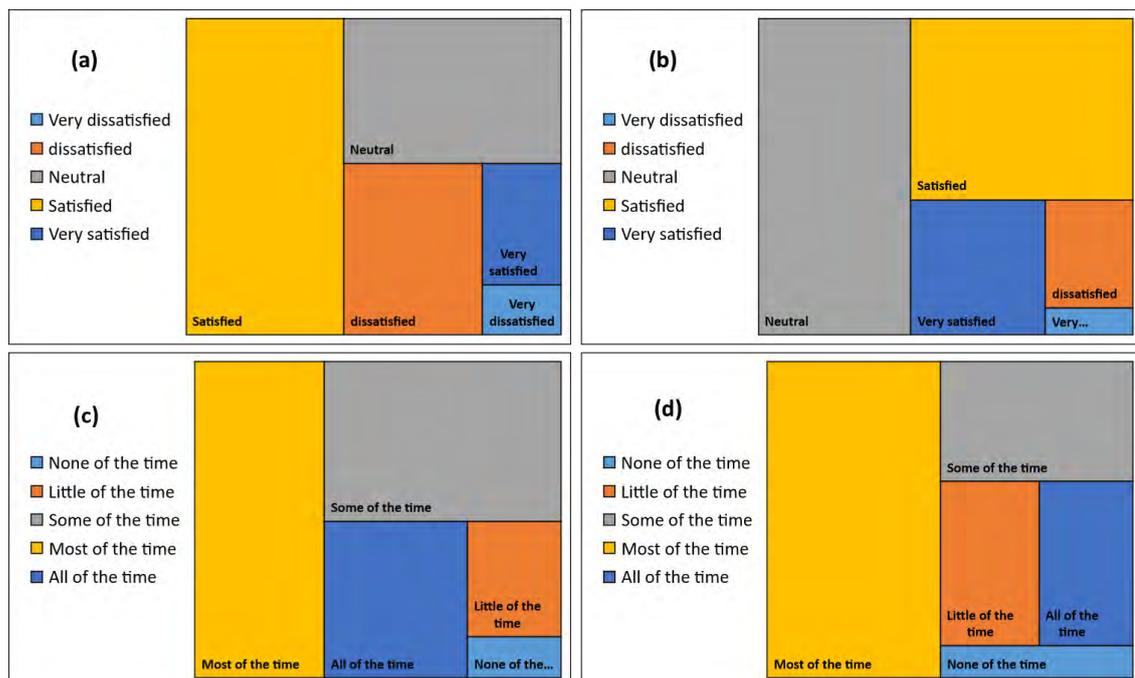


Figure 6.13 Treemap of migrant’s satisfaction level of (a) Physical and mental health (b) Satisfaction with sleep (c) Happiness and (d) Calmness in the South district of Sikkim

6.5.8 Satisfaction with Blueness

When asked about the blueness of migrants, it was observed that most migrants, 58% and 14%, had declared their blueness for a little while and none of the time. Only 16% responded for some time, while 8% of migrants reported blueness most of the time and only a few numbers among all migrants, 4% reported blueness all the time in the district of South Sikkim (Table 6.29 and Figure 6.14a).

Table 6.29 Migrant’s blueness in the South district of Sikkim

Likert scale	Blue	No. of responders	% of respondents	95% CI
1	None of the time	21	14	8.45 - 19.55
2	Little of the time	87	58	50.1 - 65.9
3	Some of the time	24	16	10.13 - 21.87
4	Most of the time	12	8	3.66 - 12.34
5	All of the time	6	4	0.86 - 7.14

Source: Household Survey, 2018

6.5.9 Satisfaction with Cheerless

Based on the calculation of the data, a significant 33.33% and 51.33% of migrants were cheerless for a few moments, none of the time and little of the time, respectively. Whereas very few percentages, 5.33% and 10% responded that they were cheerless some of the time and all the time (Table 6.30 and Figure 6.14b), which indicates that the rest of the time they were cheerful also in the South Sikkim district. On the other hand, none of the selected migrants in the South district of Sikkim were cheerless all the time.

Table 6.30 Migrant’s cheerless in the South district of Sikkim

Likert scale	Level	No. of responders	% of respondents	95% CI
1	None of the time	50	33.33	25.79 - 40.88
2	Little of the time	77	51.33	43.33 - 59.33
3	Some of the time	8	5.33	1.74 - 8.93
4	Most of the time	15	10.0	5.2 - 14.8
5	All of the time	0	0	0

Source: Household Survey, 2018

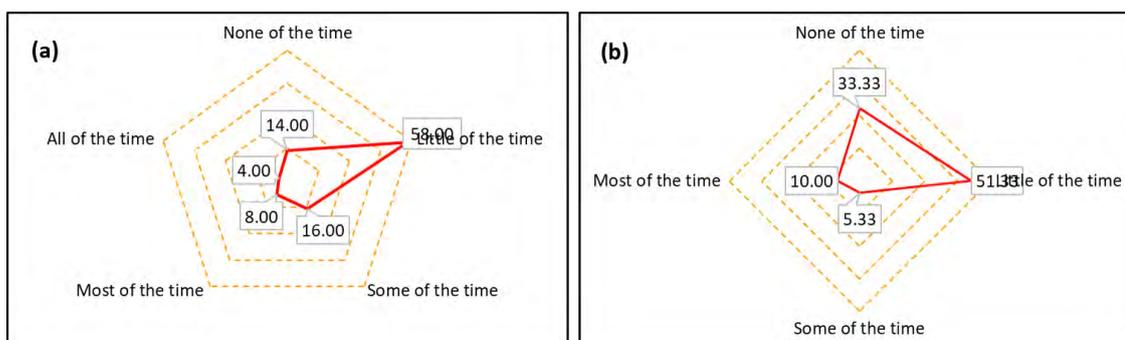


Figure 6.14 Migrant’s satisfaction level of (a) Blueness and (b) Cheerless in the South district of Sikkim

6.5.10 Migrants' nervousness

In the study of Tang et al., 2020, they mentioned that due to institutional barriers, education inequality and social capital, rural migrants are faced by several difficulties. Sometimes due to precarious status and disadvantageous position 10% migrants' felt nervous most of the time. This nervousness of the migrants is shown through the 5-point Likert scale. Although 54.67% of migrants responded that they had never felt any nervousness in the South Sikkim district and 26% indicated that for little of the time they felt nervousness (Figure 6.15). The proportional value for the category most of the time and some of the times are 0.10 and 0.09 respectively which indicated that only 10% and 9.33 % migrants felt nervousness in South Sikkim district (Table 6.31). From the tabulated data it has been cleared that most of the migrants expressed no need to worry for anything, as the security system is also strong enough in this district.

Table 6.31 Migrant's nervousness in the South district of Sikkim

Likert scale	Nervous	No. of responders	% of respondents	95% CI
1	None of the time	82	54.67	46.7 - 62.63
2	Little of the time	39	26	18.98 - 33.02
3	Some of the time	14	9.33	4.68 - 13.99
4	Most of the time	15	10	5.2 - 14.8
5	All of the time	0	0	0

Source: Household Survey, 2018

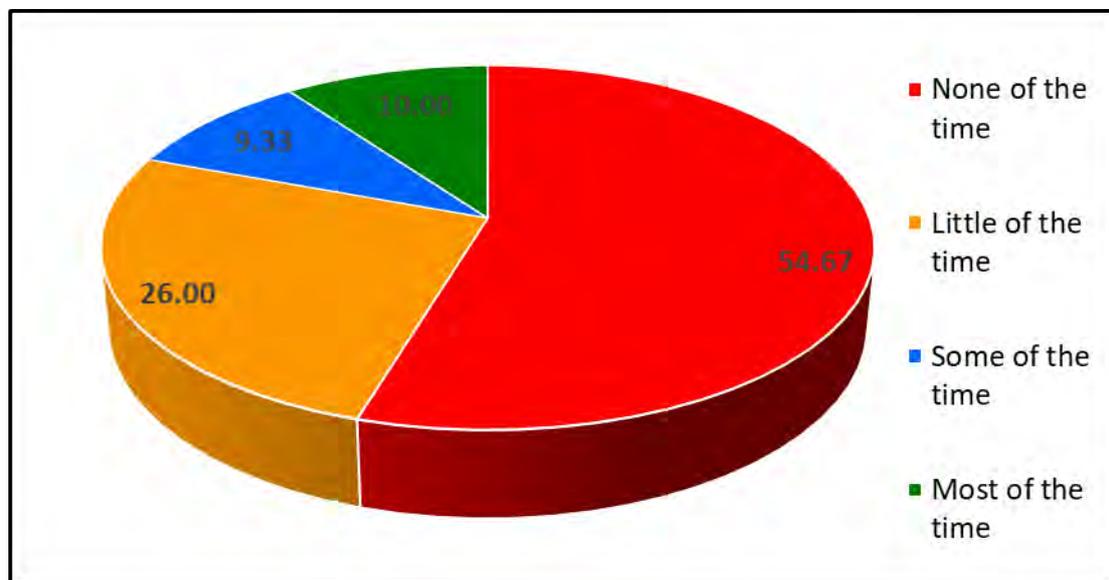


Figure 6.15 Migrant's nervousness level in the South district of Sikkim

6.5.11 Adaptation level

The adaptation level of migrants to learn new languages and their percentage of distribution in the South district of Sikkim is shown in Table 6.32. This ranges between 21.87 and 10.13 for the category of those migrants who did not adapt themselves to learning a new language at 95% confidence interval. For the category of those candidates who have adapted themselves to learning a new language at 95% confidence interval ranges between 89.87 (upper bound frequencies) and 78.13 (lower bound frequencies) (Table 6.32). From the discussion it was clear that most of the migrants, 84% expressed their opinion that they had adapted themselves to learning a new language in the South Sikkim district and they were very pleased to learn that (Figure 6.16a).

Table 6.32 Migrants adaption to learning a new language in the South district

Response	No. of responder	% of respondents	95% CI
No	24	16	10.13 -21.87
Yes	126	84	78.13 - 89.87

Source: Household Survey, 2018

When asked about adaptations to new laws and regulations in the South district of Sikkim, 66% of migrants replied that they were adapted to comply with new laws and regulations, while 34% indicated that they did not adapt to comply with new laws and regulations, although they did not mention that they did not adapt to comply with new laws and regulations in the South district of Sikkim (Table 6.33).

Table 6.33 Migrants adaption to obeying new laws and rules in the South district

Response	No. of respondent	% of responders	95% CI
No	51	34	26.42 - 41.58
Yes	99	66	58.42 - 73.58

Source: Household Survey, 2018

Migrants were also asked to adapt to local food, and they responded with interest to the surveyor that most of them, 74.67% of migrants indicated that they did not adapt to getting used to local food in the South district of Sikkim, and only 25.33% responded that they adapted to get used to local food (Table 6.34).

Table 6.34 Migrants adaption to getting accustomed to the local food in the South district

Response	No. of respondents	% of respondents	95% CI
No	112	74.67	67.71 - 81.63
Yes	38	25.33	18.37 - 32.29

Source: Household Survey, 2018

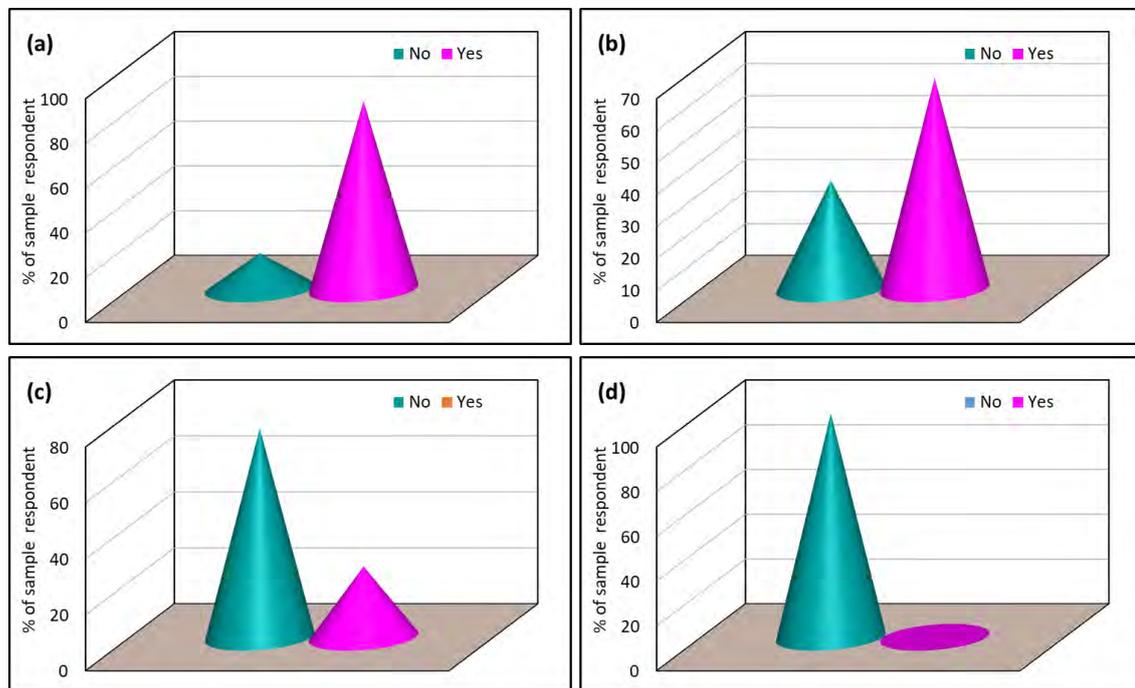


Figure 6.16 Migrant's adaptation level of (a) Learning a new language (b) Obeying new laws and rules (c) getting accustomed to the local food and (d) Changing religion in the East district of Sikkim

Migrants in the study area have also been asked about their willingness to change their religion. But in the study area, in the South district of Sikkim, 100% of migrants responded that they had no interest in changing their religion, as well as their opinion that they were happy and satisfied with their religion and religious ceremonies, that is why they were not interested in changing their religion (Figure 6.16d).

Table 6.35 Migrants no willing to Changing religion in the South district

Response	No. of respondents	% of respondents
No	150	100
Yes	0	0

Source: Household Survey, 2018

Rajendran et al., 2019 showed that migrants who have taken up local identity in the area of origin forfeiting their local identity in the area of origin have had better employment outcomes. therefore, in case of the South district of Sikkim, migrants were also asked to expose their perception of how willing they are to give up their local identity in the area of origin. From the collection, however, it was found that only 99.33% migrants expressed their view that they were not willing to give up their local identity in the area of origin, while 0.67% reacted to change their local identity in the area of origin (Figure 6.17a). At 95% confidence interval the upper bound frequencies and the lower bound frequencies range between 100 and 98.03 for the categories of migrants who did not have any interest in changing their local identity in the area of origin, and for the groups of migrants who were willing to change their local identity in the area of origin in the South district of Sikkim (Table 6.36).

Table 6.36 Migrants no willing to Giving up local identity in the place of origin of South district

Response	No. of respondents	% of respondents	95% CI
No	149	99.33	98.03 - 100.0
Yes	1	0.67	0.0 - 1.97

Source: Household Survey, 2018

After collecting the data, it was found that most of the respondents had a negative view of their willingness to marry someone from the South district of Sikkim. Accounting for 95.33% of migrants showed no interest, while only 4.67% said they were willing to marry someone from the South district of Sikkim. Proportionately 0.95 in-migrants showed interest for negative willingness while 0.05 for positive willingness to marry someone in the South district of the study area (Table 6.37 and Figure 6.17b).

Table 6.37 Migrants no willing to marrying someone who belongs Sikkim in the South district of Sikkim

Response	No. of respondents	% of respondents	95% CI
No	143	95.33	91.96 - 98.71
Yes	7	4.67	1.29 - 8.04

Source: Household Survey, 2018

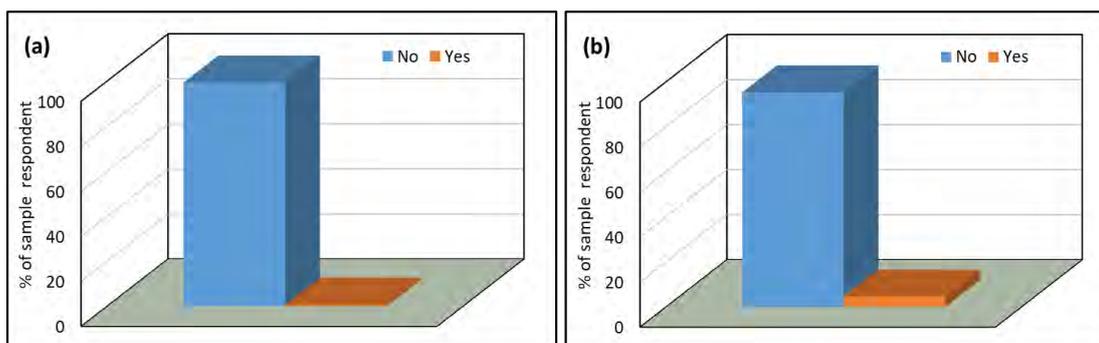


Figure 6.17 Adaptation of migrants“ (a) Not willing to Giving up local identity in the place of origin (b) Not willing to marrying someone who belongs Sikkim

6.5.12 Opinion about migration

In this study, when asked to gather information on the trend of migration of peoples to the South district of Sikkim based on the perception of migrants, it was observed that 59.33% of the total migrants in the district indicated that they had willingly migrated to the South district of Sikkim, whereas nearly 11% of the migrants responded to their partial migration status only. Among them, 24% said that they have not migrated to this district, while only 6% responded unaware of the question and they said that they had no idea about the migration status in the South district of Sikkim (Table 6.38 and Figure 6.18).

Table 6.38 Opinion about migration to the South district of Sikkim

Response	No. of respondents	% of respondents	95% CI
Yes	89	59.33	51.47 - 67.19
Partly	16	10.67	5.73 - 15.61
No	36	24.0	17.17 - 30.83
Don't know	9	6.0	2.2 - 9.8

Source: Household Survey, 2018

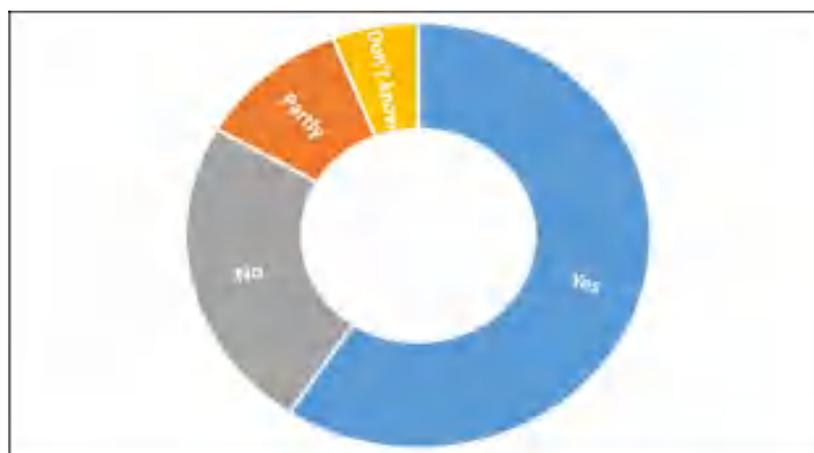


Figure 6.18 Opinion about migration to the South district of Sikkim

6.6 Comparative analysis of East and South districts of Sikkim

A chi-square test was calculated for the testing of the research hypothesis: *There is no significant relationship in satisfaction levels of in-migrants in the area of destination.* The results of satisfaction levels of migrants between East and South districts based on different attributes is tabulated in Table 6.39. Here df is the degree of freedom (which actually denotes the number of total category -1) and χ^2 is the calculated chi-square value. Considering the critical values and the chi-square values for the different variables level it has been found that in most of the cases we found the relationship statistically not significant. Here, for the migrants' job satisfaction level with 4 degree of freedom the critical value is 13.277 and the chi-square value is 7.071; that is why as the chi-square value is less than the critical value, it can be said that there is no statistically significant relationship exist between the variables. In case of migrants' satisfaction level with remittance with 4 degree of freedom the chi-square value is 1.429 and the critical value is 13.277. Since the critical value is more than the chi-square value, this category also shows a statistically not significant relationship. For the case of saving patterns of the migrants, the satisfaction level was calculated with 95% confidence level, with 4 degree of freedom where the chi-square value is 13.276 and the critical value is 9.488; therefore, the critical value being less than the chi-square value a statistically significant relationship at 95% confidence level seems to exist. For the level of migrants' satisfaction with their physical and mental health, satisfaction level for the sleeping pattern, satisfaction level for the happiness and calmness of the migrants, critical values are same which is 13.277 and the chi-square values are 3.538, 8.603, 8.536 and 4.653 respectively which are all less than the critical values and therefore denote statistically not significant. In case of blueness, the level of satisfaction of the migrants with 4 degree of freedom, the critical value is 9.488 and the chi-square value is 10.489; the chi-square value again being more than the critical value indicates that there exists statistically significant relationship at 95% confidence level. For the level of satisfaction of the migrants about their cheerlessness and nervousness with 3 degree of freedom the calculated critical value is found equal which is 11.345 the chi-square values are 14.668 and 25.362 respectively denoting statistically significant relationship at 99% confidence level (Table 6.39).

Table 6.39 Results of chi-square test between East and South districts

Level	df	Critical value	χ^2	Significant level
Migrants' Job satisfaction	4	13.277	7.071	Not significant
Migrant' satisfaction with remittance	4	13.277	1.429	Not significant
Migrant' satisfaction with savings	4	9.488	13.276	Significant at 95% confidence level
Migrant's satisfaction with Physical and Mental Health	4	13.277	3.538	Not significant
Migrant' satisfaction with sleep	4	13.277	8.603	Not significant
Happy	4	13.277	8.536	Not significant
Calm	4	13.277	4.653	Not significant
Blue	4	9.488	10.489	Significant at 95% confidence level
Cheerless	3	11.345	14.668	Significant at 99% confidence level
Nervous	3	11.345	25.362	Significant at 99% confidence level

The level of satisfaction of migrants in the East District was also calculated by using the composite index method; the composite index represents a higher level of satisfaction for migrants. In this study, it was found that 26.32% of migrants expressed a low level of satisfaction with a composite value index of < 0.60. In addition, the CI value of 0.60-0.70 indicates the medium level of satisfaction of migrants. Almost 46% of migrants reported a high level of satisfaction, with a composite index value of more than 0.70 (Table 6.40).

Table 6.40 Level of Composite Index of Satisfaction level of East district

Level	CI	Number	Percentage
Low	<0.60	50	26.32
Medium	0.60 - 0.70	53	27.89
High	> 0.70	87	45.79

The analysis of covariance of composite index of satisfaction level of migrants in the East district of Sikkim is presented in Table 6.41. It revealed that the calculated value of F (5.368) is greater than the tabulated value (4.11) at 95% confidence level. Thus, the null hypothesis *The satisfaction level of in-migrants is not dependent on*

demographic characteristics in the East district of Sikkim is rejected and the alternative hypothesis is accepted. Hence, it can be concluded that the composite index of satisfaction level is dependent on demographic characteristics in the East district. More than half of respondents' (R^2 0.56) satisfaction level is directly correlated with their demographic's factors.

Table 6.41 Analysis of variance of Composite Index of Satisfaction level of East district

Source	DF	Sum of squares	Mean squares	R ²	Adjusted R ²	F	Pr> F
Model	36	1.104	0.031	0.561	0.457	5.368	< 0.0001
Error	151	0.863	0.006				
Corrected Total	187	1.967					

The level of satisfaction of migrants for the South district of Sikkim is also computed by Composite Index. Here also it is observed that higher the composite index higher is the satisfaction level. According to the Composite Index, the low, medium and high level of satisfaction values are less than 0.64, 0.64 to 0.70 and more than 0.70 respectively. 26.67% migrants revealed that their lower level of satisfaction level and the medium level of satisfaction level are occupied with the same percentage whereas 46.67% migrants expressed their high satisfaction level (Table 6.42).

Table 6.42 Level of Composite Index of Satisfaction level of South district

Level	CI	Number	Percentage
Low	< 0.64	40	26.67
Medium	0.64 - 0.70	40	26.67
High	> 0.70	70	46.67

The ANCOVA of composite index of satisfaction level in the South district of Sikkim is summarized in Table 6.43. It shows that calculated F value (2.910) is less than the tabulated value (4.23) at 95% confidence level. Thus, the null hypothesis *The satisfaction level of in-migrants is not dependent on demographic characteristics in the South district of Sikkim* is rejected and the alternative hypothesis is accepted. Hence, it can be concluded that the composite index of satisfaction level is not dependent on demographic characteristics in the South district. Also, the results of coefficient of

determination (R^2 0.38) is not good, it means that only 38% migrants' satisfaction level is directly dependent on their demographics characteristics.

Table 6.43 Analysis of variance of Composite Index of Satisfaction level of South district

Source	DF	Sum of squares	Mean squares	R^2	Adjusted R^2	F	Pr> F
Model	26	0.571	0.022	0.381	0.250	2.910	< 0.0001
Error	123	0.928	0.008				
Corrected Total	149	1.499					

6.7 Summary

In this chapter, it has been observed that the perception about the satisfaction level of in-migrants in the study area i.e., East and South Sikkim districts along with the consequences of migration, particularly in case of migrant workers are based on their own experiences. It was therefore not surprising that 340 respondents had many different views on their level of satisfaction with various issues related to their daily lives. Despite the diverse feedback of migrants, some general inferences have been identified. This study found that most of the respondents in both the districts (East and South Sikkim) were overwhelmingly positive about their level of satisfaction. When asked about their level of job satisfaction, 46% and 44% of migrants responded that they were satisfied in the East and South Sikkim districts. Almost the same percentage (35%) of respondents said they were satisfied with their opinion on the pattern of remittances, but 38% of East District migrants and 41% of South district migrants expressed their dissatisfaction with the pattern of saving. Only 15% of the East and 20% of the South Sikkim migrants reported dissatisfaction with their physical and mental health conditions. Migrants in both districts indicated that they were satisfied with the maximum time. Above all, this report means that migrants in these two districts of Sikkim have also faced certain disadvantages, and that is why a number of respondents who make a negative statement (dissatisfied feelings) about their perception of the level of satisfaction with migration blame themselves for their impoverishment, underdevelopment in their native area that have been confronted with difficulties.

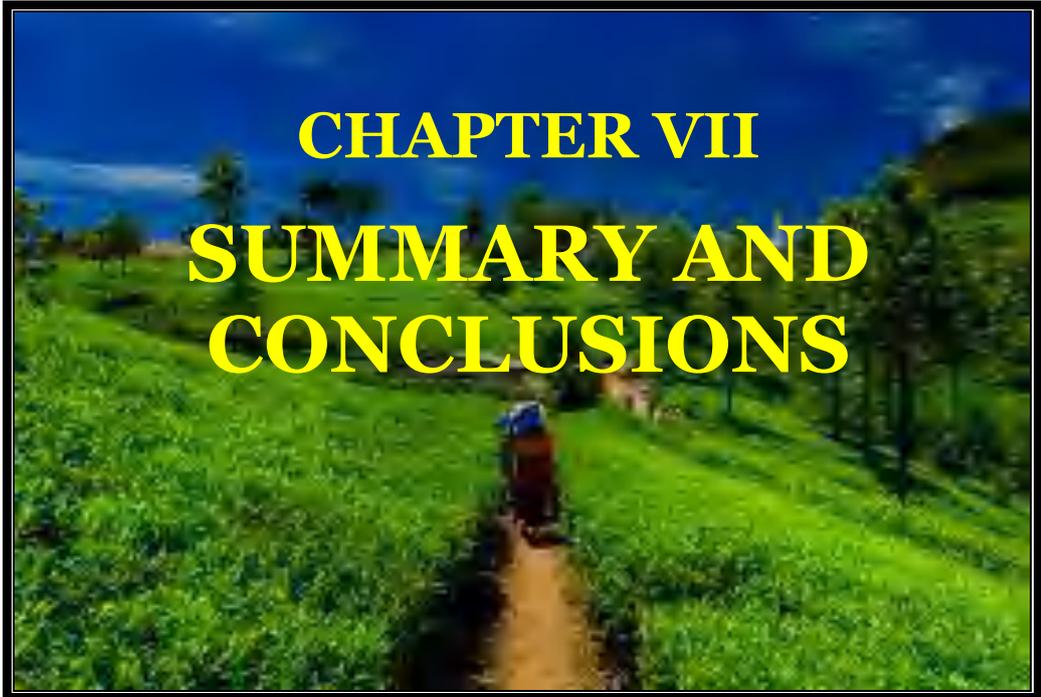
Despite some kind of abridgment, this report explicitly revealed that a migrant from the South and East Sikkim districts is a significant part of the Sikkim state in India. It has also been clear from their feedback that, in order to alleviate poverty and food shortages, they have migrated to South and East Sikkim as a destination district in order to achieve a standard of living. The findings on the perception of the satisfaction of migrants confirm that migrants are of greater importance in both districts.

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CHAPTER VII
SUMMARY AND
CONCLUSIONS



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SUMMARY AND CONCLUSIONS

7.1 Introduction

The main goal of this chapter is to summarize the foregoing discussion along with major findings of the present study in terms of policy implications regarding structure and socio-economic conditions of migrants in East and South districts of Sikkim. It may be noted that it is an analytical study based on information received from the sample respondents of the study area through a structure questionnaire. However, this study does not represent all the in-migrants in the study area, because the perception level of the migrated population may vary from place to place as well as from person to person. Nevertheless, sample respondents have been considered as the in-migrant community as a whole in the study area. The present work, nonetheless, is an explanatory research and tries to focus on different problems and difficulties faced by the in-migrants as far as their quality of life and endurance scenario in the study area are concerned. These again are based on the rate of migration, factors and patterns, structure and compositions, socio-economic conditions of in-migrants and their perceptions on the level of satisfaction of the sampled respondents about their living and working conditions. Thus, the outcomes of the study may facilitate research personals, policymakers and also for the Government and other organizations to take a fair decision concerning eliminating the issues suffered by the in-migrants in the study area. The study also highlights the scope for future research in the area.

7.2 Summary and major findings

7.2.1 Summary

The second chapter of the study entitled —*Geographical set up of the study area*” discusses with the physical aspects such as physiography, geology, climate, drainage system, soil, vegetation and also the socio-cultural and economic aspects of the area such as growth, distribution and density of population, sex ratio, distribution of scheduled caste and scheduled tribe population, educational level, ethnicity, occupational structure, health conditions, land use pattern, mines and minerals, agricultural and industrial set up, irrigation facilities, power infrastructure, transport and communication conditions and above all the tourism facilities in the study area. As

is observed the distribution, density and growth of the population are very high in the study area as compared to the other districts of the state. It is observed that over all facilities like health, transport and communication, energy resources as well as different economic activities in the East and South districts of Sikkim have been accelerated over time in the perspective of development. Availability of these striking facilities in the study area is the main reason for the faster in-migration rate in the study area. The pleasant climatic conditions with mild summer season and scenic beauties of the area are the factors for the acceleration of the in-migration. A healthier educational infrastructure has also attracted the migrant students in the study area. Lack of available labour force in the study area has attracted migrant labourers to the study area from the neighbouring states for working in different types of agricultural and other economic activities. Power infrastructure of the study area is mainly based on hydropower projects, which have attracted the migrant labours for in-migration to the study area. But, due to the unavailability of heavy mineral resources in the area, a rigid lifestyle in view of mountainous terrain, citizenship Act of 1954 and Sikkim Subjects Regulation that remained in force after 1975 in which sale of land is prohibited to other Indian nationals and also forbidden to settle down in the study area are some of the factors which were considered as serious impediments on the in-migration process in the study area.

The first objective is analysing the factors and pattern of the migrant population after 1975 in the study area. The same has been discussed in the third chapter entitled —*Factors and Patterns of Migration in East and South districts of Sikkim*” which deals with the migration history of Sikkim highlighting internal, national and international migration. Factors and specific reasons for in-migration in the study area have been discussed in the chapter. Patterns of in-migration in the study area have also been discussed briefly. Both push and pull factors are responsible for in-migration in the study area. About 52.63% of in-migrants were migrated to the East district due to push factor and 51.33% of in-migrants were also migrated to the South district by the force of push factor. Therefore, it is revealed from the study that the in-migration process is mainly due to the reverse circumstances in the native land of in-migrants. The principal specific reasons for the push factor are large family size, small landholding and inadequate job facilities in their native land which occupied 10.57%, 11.83% and 10.28% for East district and 11.09%, 12.12% and 10.74% for South district,

respectively. On the other hand, the main pull factor of migration to the study area is higher income opportunities. About 13.48% and 14.43% of in-migrants in East and South districts, respectively were attracted by the higher income opportunities in the area. So, the push factor is more responsible for migration rather than the pull factor in the study area. Patterns of in-migration showed that both inter-state and international migration have occurred in the study area. The maximum number of in-migrants infiltrated to the study area from the neighbouring states such as West Bengal and Bihar. According to the 2011 census, 43.10% and 43.01% of persons were in-migrated to the East and South districts from West Bengal and 19.44% and 14.83% of people were in-migrated to the East and South districts, respectively. It is also found that 21.11% and 24.43% population were in-migrated to the East and South districts from the outside of India, specifically from Nepal and Bhutan. So, it is revealed from the study that the patterns of in-migration in the study area mainly depend on short length migration in case of both inter-state and international migration.

The fourth chapter of the study entitled —*Structure and Composition of Migrants in East and South districts of Sikkim*” is an attempt to measure the structure and composition of the migrant population in the study area. This chapter deals with the rate of migration, structure and composition of in-migrants in East and South districts of Sikkim. The study revealed that the rate of in-migration has been declining since the census of 1991. The East district has experienced a declined rate of migration from 27.73 in 2001 to 22.13 in 2011 and the South districts also has experienced a rapid decline from 16.63 in 2001 to 5.14 in 2011. In both the districts, the rate of migration is much higher in rural areas than the urban areas.

In structure and composition of in-migrants, it is found that the sex ratio among the migrants in East district (1096 females/1000 males) and South district (1472 females/1000 males) are much higher than state and national level average, which means that females are more migrated than male. The main reason is not only marriage, but they also worked as the cultivators and agricultural labourers in the study area. The working-age group (20 - 34 years) is dominated in the study area; it indicates that the main reason for migration is economic facilitation. Marital composition of in-migrants revealed that married persons are more in-migrated to the study area than unmarried persons, where married females are more migratory than male married persons. The occupational structure of in-migrants revealed that East district has the maximum

proportion of other workers (67.72 % in 1991 and 64.66% in 2001) among the in-migrants followed by cultivators (23.49% in 1991 and 23.54% in 2001); on the other hand, South district has maximum proportion of cultivators (54.9% in 1991 and 51.58% in 2001) followed by others workers (37.66% in 1991 and 40.78% in 2001). It indicates that the in-migrants in the study area mainly depend on cultivations and other service activities.

The fifth chapter, entitled —*Sociœconomic conditions of migrants in East and South districts of Sikkim*” deals with the social and economic status of in-migrants. The study therefore, focusses on their demographic profile, economic profile and household status of the in-migrants based on the data collected from the household survey. This chapter focuses on the fourth objective to evaluate the socio-economic conditions of the migrant people in the study area.

According to the household survey, most of the respondents belong to the demographic dividend age group (15-59 years) in East district (95.79%) and South district (99.33%) of Sikkim. It implies that in-migrants are an active population and migrated mainly for their economic activities. The sex ratio among the sampled respondents is very low. The proportion of male and female is 84.74% and 15.26% in the East district and 85.33% and 14.67% in the South district. In East district, Hinduism (67.89%) is dominating religion among in-migrants and, whereas in South district, Muslim (52%) are a majority. In caste composition, 48.95% and 19.47% belong to general and OBC-A categories respectively in East district and 38% and 35.33% migrants are general and OBC-A categories respectively in South district. Bengali and Bhojpuri are the principal mother tongues spoken by the respondents. In East district Bhojpuri occupied the position of prime mother tongue among respondents (45.79%) followed by Bengali (27.37%), whereas in South district Bengali was spoken by 58.67 % of respondents and Bhojpuri was spoken by 21.33% of respondents. Among the respondents, 65.26 % are married in the East district, but in the South district 57.33 % respondents are unmarried. In the East district, 52.11% and 30% respondents were from the states of West Bengal and Bihar respectively, whereas, in the South district, 70.67% migrants came from West Bengal and 18.67% from Bihar. In the East district, 83.68 % and 16.32 % respondents are living in nuclear and joint families respectively. But, in the South district, it is 85.33 % and 14.67 %. Most of the respondents either have a small family size or they live alone in the study area due to costly and toiled life in this

mountainous region. Only 15.79% and 18% of respondent migrants are illiterate in East and South districts, respectively. At the same time, 64.74 % and 68.67% migrants have high school education only in East and South districts, respectively. Hence, there is a lack of skilled workers in different sectors of the economy.

The occupational structure of sample migrants revealed that principal occupations are daily work (25.79%) and business (16.84%). Respondents in East district and in South district daily work, masons and constructional work (62.33%) are the major occupations. Most of the respondents are self-employed (73.16% in East district and 74% in South district) and others mainly work in the private sectors (24.41% in East district and 24% in South district). Average monthly income of the respondent migrants is higher in the East district than the South district but the average expenditure is higher in the South district. The mean annual remittance sent by migrants is also higher in the South district. However, average annual savings of respondents is slightly higher in the East district (₹ 19147) than the South district (₹ 18923). About 24% and 30% respondents of East and South districts have borrowed loans. The average loan borrowed by the respondents is considerably higher in the South district (₹ 166822) than the East district (₹ 76041.67). In the East district, 58.95 % and 41.05% respondents have been working in urban and rural areas respectively, whereas, in the South district, it is 60 % for urban and 40 % for rural. Average working time of respondents is 6.29 days per week and 9.89 hours per day in the East district; however, in the South district, it is 6.51 days per week and 9.07 hours per day.

So, there is a wide variety of different aspects of the economy of respondents in East and South districts. Average monthly expenditure of respondents in the South district is more than their average monthly income, which accelerates the amount of loan and suppresses their amount for savings and remittance. It indicates the better economic stability of respondents in the East district than the South district. So, the economic scenario of respondents in the South district revealed that migrant workers of the district are deprived and there is no significant relationship between work value and their earnings.

Household status of respondents showed 69.47% and 23.68% respondents in East district lived in rented houses and workplaces respectively and in South district, it is 70% and 27.33%. About 47.16% and 33.16% respondents in the East district and 58.67 % and 35.67 % respondents in the South district lived in a pucca and semi pucca

house respectively. Electricity facilities are availed by most of the respondents of East (99.47%) and South districts (99.33%). But they are desiderated in the drinking water and sanitation facilities. About 63.16% respondents in East district and 68.67% respondents in South district are yet to get fresh drinking water for their livelihood. Although sanitation facilities in houses of respondents are quite better compared to drinking water facilities in East district (87.89%) and South district (91.33%), the same are not appreciable. Facilities regarding solid waste management, garbage and sewerage are very poor in the localities of respondents. Respondents mainly depend on mobile for their communication and entertainment. Most of the respondents in East (95.79%) and South districts (95.33%) have mobile for their communication and entertainment. The household status also revealed that most of the respondents do not have a healthier work environment which would affect their social life.

A self-developed Socio-Economic Index (SEI) has been used to study the socio-economic status of respondent migrants of the study area. SEI of the respondents is categorized into three-level, high, medium and low socio-economic status. About 37.37% respondents are categorized as having low-level socio-economic status, about 46.84% of respondents belong to the medium and only 15.79% of respondents are having high-level socioeconomic status in the East district. On the other hand, in the South district only 5.26% respondents are found to enjoy high-level socio-economic status, and 38.42% and 35.26% are belonging to medium and low socioeconomic status, respectively. Maximum numbers of migrants in both the districts are belonging to socio-economic conditions ranging from medium to low level for their livelihood. So, it is revealed that the socio-economic status of the migrants of the East and South districts of Sikkim is in an unprivileged situation.

The sixth chapter entitled *‘Satisfaction level of migrants’* especially focuses on the perception of the migrant labours about their satisfaction level in the East and South districts of Sikkim that is the area under study. The study focuses on the determinants of life satisfaction, for example, physical and mental health condition; job satisfaction; savings and remittance pattern; sleeping pattern; happiness, blueness, nervousness, calmness and cheerlessness level of migrants. The perception of migrants about their satisfaction level in the study area revealed interesting facts regarding job (45.79% of East and 44.00% of South districts), remittance (35.26% of East and 35.33% of South districts), physical and mental health (48.95% of East and 42.00% of South districts)

and sleeping pattern (41.05% of East) which are found satisfactory for the in-migrants in the study area, however in South district, 40.67 % in-migrants have opined their neutral position regarding sleeping satisfaction. In-migrants in the study area are dissatisfied about their amount of savings (37.57% of East district and 40.67% of South district). In-migrants of the study area opined that most of the time they are happy (42.63% of East district and 35.33% of South district) and calm (45.26% of East district and 47.33% of South district); little of the time they are blue (60.00% of East district and 58.00% of South district) and cheerless (53.68% of East district and 51.33 of South district) and none of the time they have nervousness (50.00% of East district and 54.67% of South district). Perception about their adaptation level in the study area revealed that they are willing to adapt to learning a new language (83.73% of East district and 84.00% of South district) and obeying new laws (76.84% of East district and 66.00% of South district) and they are unwilling to getting accustomed to local food (59.47% of East district and 74.67% of South district); changing religion (92.2% of East district and 100% of South district); giving up native identity in the area of origin (88.21% of East district and 99.33% of South district) and marrying in Sikkim (86.77% of East district and 95.33% of South district). So, from the above study, it is found that most of the respondents in East and South districts of Sikkim were devastatingly positive about their level of satisfaction. Above all, this study indicates that in-migrants in both districts have faced certain disadvantages, and that is why a number of respondents make a negative statement (dissatisfied feelings) about their perception of the level of satisfaction. The negative perception of in-migrants specify that they have to face their impoverishment and underdevelopment in their native area and have to confront difficulties too. Though, most of the in-migrants are pleased with their different levels of satisfaction it means they have to live in a healthier socio-economic condition, but, most of them have denied adapting to the novel aspects in the migration field. It indicates that in-migrants of the study area have acclimatized themselves by their essentiality but not by their bosom.

7.2.2 Major findings

The major findings of the study based on hypotheses are as follow

- In the context of the hypothesis (Ho)-IA, *There is no significant mean difference between social status and economic status of in-migrants in the East district of Sikkim* that is presented in the chapter- V (details in section 5.11). The

study reveals that observed t value (5.581) is greater than critical t value (1.966) and since its p-value (<0.001) at two-tailed test is less than alpha ($\alpha = 0.05$), the null hypothesis is rejected and the alternative hypothesis is accepted. So, it is concluded that there is a significant mean difference between social status and economic status of in-migrants in the East district of Sikkim.

- The context of hypothesis (Ho)-IB that is described in chapter -V (details in section 5.11). Which shows that observed t value (1.621) is less than critical value (1.968) and since P-value (0.106) at Two-tailed test is greater than alpha value ($\alpha = 0.05$), the null hypothesis IB *There is no significant mean difference between social status and economic status of in-migrants in the South district of Sikkim* is accepted. So, it is concluded that there is no significant mean difference between social status and economic status of in-migrants in the South district of Sikkim.
- The context of hypothesis (Ho)-IIA presented in chapter-V *The socio-economic status of in-migrants is not dependent on demographic characteristics in the East district of Sikkim* shows that obtained F value (11.417) is greater than the tabulated value (4.11) at 0.05 level of significance. So, the Null hypothesis is rejected and the alternative hypothesis is accepted. Hence, it is concluded that socio-economic status of in-migrants is dependent on demographic characteristics in the East district of Sikkim. The R^2 of 0.73 suggests that 73% of the data fit the regression model; it indicates 73% SEI is dependent on migrants' demographic characteristics.
- The context of hypothesis (Ho)-IIB presented in chapter- V (section 5.11) shows that the calculated F value (8.485) is greater than the tabulated value (4.23) at 0.05 level of significance. So, the Null hypothesis *The socio-economic status of in-migrants is not dependent on demographic characteristics in the South district of Sikkim* is rejected and the alternative hypothesis is accepted. Hence, it can be concluded that socio-economic status of in-migrants is dependent on demographic characteristics of the South district of Sikkim. The R^2 (0.64) and adjusted R^2 (0.57) reveal 64% migrants' socio-economic status in the South district is directly related to demographic factors.

- The context of hypothesis (Ho)-III, *There is no significant relationship in satisfaction levels of in-migrants between East and South districts of Sikkim* presented in chapter- VI (detailed in section 6.5) shows chi-square (χ^2) values of saving pattern, blueness, cheerless and nervousness which are less than the critical value, hence there is a statistically significant relationship at 95% confidence level. But the calculated chi-square (χ^2) of job satisfaction, satisfaction with remittance, physical and mental health, sleeping pattern, happiness and calmness are all less than the critical values denote that the relationship is not statistically significant.
- The context of hypothesis (Ho)-IVA presented in chapter- VI (detailed in section 6.5) revealed that the calculated value of F (5.368) is greater than the tabulated value (4.11) at 95% confidence level. Thus, the null hypothesis *The satisfaction level of in-migrants is not dependent on demographic characteristics in the East district of Sikkim* is rejected and the alternative hypothesis is accepted. Hence, it can be concluded that the satisfaction level of in-migrants is dependent on demographic characteristics in the East district. More than half of respondents' (R^2 0.56) satisfaction level is directly correlated with their demographic's factors.
- The context of hypothesis (Ho)-IVB, *The satisfaction level of in-migrants is not dependent on demographic characteristics in the South district of Sikkim* presented in chapter- VI shows that calculated F value (2.910) is less than the tabulated value (4.23) at 95% confidence level. Hence, it can be concluded that the satisfaction level of in-migrants is not dependent on demographic characteristics in the South district. Also, the results of coefficient of determination (R^2 0.38) is not good, it means only 38% migrants' satisfaction level is directly dependent on their demographic characteristics.

7.3 Policy implications

The comprehensive and scientific policies and strategies are needed for socio-economic development of migrants of East and South districts of Sikkim. It is based upon a thorough study of the migration rate, Socio-economic index, and perceptions of satisfaction level of in-migrants. Meanwhile, migration rate, socio-economic index and perceptions of in-migrants are likely to be varied from one region to another where proper field investigation is necessary to conduct the research work. From this point of

view, the present study has gone through a thorough analysis of factors and patterns, structure and composition; social and economic status and perceptions of satisfaction level of in-migrants of the study area in order to accomplish some magnificent conclusions by which the study can carry well-thought-out policy implications for the study area under investigation. Therefore, the policy implications or recommendations are made based on the findings of the study that are as follows:

7.3.1 Initiate skill-based education

The study found that the literacy rate among in-migrants is very high, but most of them have school level education. The least number of in-migrants have a professional and technical degree. Therefore, they are working as unskilled labour.

Thus, it is recommended to provide a policy for in-migrant workers with their required necessities. Government has to initiate skill-based education for in-migrants. The policy should ensure to grow the up-skilling ability of in-migrants who have been working in the study area. The government should also initiate organising several training programmes and certification courses to augment the supply of skilled labours.

7.3.2 Improvement of working conditions

a) The study found that working conditions of in-migrants are not healthier. They are working for more than 9 hours per day and more than 6 days in a week without any overtime benefits, which violate the norms of the International Labour Organization (ILO) and Industrial policy of India.

On the basis of this issue, it is recommended that the Government takes some initiative to establish a Migrant Labour corporation with adequate statutory power to oversees the problems of these in-migrant workers and ensure that they have to get extra overtime wages beyond their working time after 8 hours per day or 6 days in a week.

b) The study also revealed that most of the in-migrant workers lived in rented houses with high rent and also it is revealed that their workplaces have an unhygienic environment. This expresses their poor working conditions which make them suffer from economic recession and resulting mental depression.

It is suggested that in-migrant workers should be brought under different housing schemes sponsored by the central or state Government. If in-migrants avail

proper housing facilities, they can bring down their families that can reduce their mental depression and will lead to good working conditions.

7.3.3 Ensure proper insurance scheme

The study revealed that in-migrant workers do not have any insurance policy, though many of them are working in high-risk sectors such as mining or industries. They have faced many life risks situations.

It is recommended that the Government should ensure that they are under the insurance policy or are brought under the Group Insurance Scheme or the National Insurance Scheme launched by the Central Government during 2018-19. This is aimed to give protection for the in-migrant workers. It is also recommended that on an urgency basis, the State Government and Local authorities should bring in-migrants and their families under these social protective schemes.

7.3.4 Conduct awareness programme

In-migrant workers who are engaged in the industrial sectors are not conscious about the Government schemes or are unable to take advantage of them. In-migrant workers who are working in unorganized sectors are always deprived by the concerned authorities and they have faced unruly behaviour of their masters for their survival.

It is recommended that the Government and labour department should launch a common toll-free helpline number for the in-migrant labourers who are engaged in unorganised sectors. It is also recommended that the Government should establish an information and resource centre to accelerate the awareness programme meant for the in-migrant workers.

7.3.5 Develop an extensive database

There is no database recorded about the in-migrants in the states. As a result, due to lack of documentation and legal identity proof, in-migrants are eliminated to ingress the existing policies to legal rights, public services and social security programmes and Government also is in an obscure position to be aware about in-migrants. These in-migrants are not recorded in both the areas of origin and destinations.

It is recommended regarding the above issues; the Government should conduct a state-level survey on migration to develop an extensive database on in-migrants. Government should devise the process of registration of in-migrants and introduce the proof of identity of in-migrants. It is also suggested that the Government should be

subjected to the social audit for in-migrants to access a comprehensive database about in-migration.

7.3.6 Eradicate wage disparities

It is observed from the study that in-migrant workers are facing disparities regarding their wages. These disparities are found between rural and urban areas; in between male and female in-migrants and also among the native and in-migrant workers. It is observed, female in-migrant workers who are working in agriculture and allied sectors in rural areas are paid very low wages as compared to male in-migrants. For this reason, female in-migrants are found high in rural areas and in the agricultural sector. This scenario is also found in urban areas and in between native and in-migrants.

It is recommended that to eradicate these wage disparities in a different segment of society, the Government should pass an inclusive law and implement it immediately. The government should construct a vigilance committee to ensure the social and economic rights of in-migrants. It is also suggested to establish an institutional set up for in-migrants for a balanced society.

7.3.7 Providing standardized quality of life

a) The study found that all the in-migrants haven't availed adequate fresh drinking water but, it is the basic needs for livelihood. Without having fresh drinking water, they suffer from several diseases which directly affect their physical and mental health.

It is suggested that the Government takes initiative to provide fresh drinking water to all of them by establishing the drinking water project extensively. This is required not only for the stability of physical and mental health but also for the economic affluence of the in-migrants by the reduction of their medical expenditure.

b) It is found from the study that most of the in-migrants are not familiar with local languages, which create several communication problems in their workplace as well as for their daily life.

It is recommended that the Government or other non-governmental organizations (NGOs) set up the special schools for in-migrants and their children to learn the local languages. This will obviously curtail the communication gap between native and in-migrant populations.

- c) It is found from the study that all of the in-migrants haven't benefited from the proper sanitation facilities. This affects directly on their health and social prestige. which have also disbanded the mission adopted by the Central Government.

It is recommended that the state government should provide the sanitation facilities to all in-migrants by implementing the –*Swachha Bharat Abhijan*” simultaneously with the citizen of the state. This eradicates social discrepancies and helps preserving social security of in-migrants.

- d) The research found that in-migrants haven't benefited from the proper solid waste, garbage and sewerage facilities in their residential society. This provides an unhygienic environment to them which queried their mental ability and also working mentality.

It is suggested that the Government and other local authorities should provide them with basic facilities to ensure their civic stability in which in-migrants perform their social duties and responsibilities unhesitatingly.

- e) It is found from the research that in-migrants are suffering from non-adaptation to local food habits. Unavailability of familiar food habits directly effects on their health and nutritional values as well as on their work capacity.

It is suggested that local authorities should introduce them with familiar food habits for their livelihood by organising community kitchens in their localities or workplace.

In addition, with these above recommendations, the Government should establish a Migrant Welfare Board for the overall development of in-migrants with the steps taken towards the food security, financial support as well abolishing the anti-migrant attitude for susceptible groups among in-migrants.

7.3.8 Providing banking facilities

It is found from the study that a certain number of the in-migrants do not have any bank account due to unavailability of documents in the migration field. This revealed that they are unable to save their earnings and also are faced with problems regarding remittance to their families in the homeland. This is also found from the study that some of the in-migrants have taken loans from different private organizations or from some individuals with a high rate of interest, which accelerate them into indebtedness.

It is recommended that the Government should take initiative with the collaboration of banking authorities to provide the banking facilities with the minimum documentation process and balance. Although the Government has taken several steps to waive the loans of those who belong to vulnerable groups, simultaneously banks should take some steps to make necessary arrangement of loans by simplifying and quickening the process wherein to stop economic exploitation of under privileged groups among in-migrants.

7.3.9 Ensure basic facilities

A comprehensive study of the existence of in-migrants brings a lot of amazing information from the study area. Many of the in-migrants who have settled for many years in the study area are not recognised as citizens or inhabitants due to the Citizenship Act. of Sikkim. Respondents opined during the field survey that this law obstructs the accessibility of several facilities to the in-migrants such as availing the ration facilities, banking facilities housing facilities and other schemes provided by the Central and State Governments. Land laws of the state also have counteraction to purchase of land to establish the business or residential setup. This uncertainty has demoralised in-migrants to live and they argued that they would return back to their native place after the completion of their necessities and all the in-migrants stated that they are never willing to settle down and they never choose to marry someone in the migration field.

It is recommended with the above findings from the research that the Government should take this issue for consideration and should take some steps in order that in-migrants will get ration facilities, banking facilities and other opportunities to survive in the migration field and will improve their quality of life socially and economically. If the Government takes measures about this, it will boost the economic affluence of the state because a part of the economy of the state mainly depended on in-migrants of the area. It is also stated by the respondents that due to these obstructions in the study area migration rate is gradually decreasing during the last two decades. Though, it is found from the study that most of the in-migrants have come from the adjoining states of West Bengal and Bihar, which have very high density of population and where per capita of job opportunities was very low. But, during recent decades several schemes adopted by the Central and State Government of West Bengal and Bihar especially _The Mahatma Gandhi National Rural Employment Guarantee Act.,

2005' (MGNREGA) minimize the insufficiency of job in originating place and the negative aspects in the migration field effects on migration rate. Therefore, it is very necessary to take some measures to ensure the basic facilities to in-migrants for their reconfirm in the study area.

7.4 Scope for further research

The present study focuses on structure and socio-economic conditions along with the perception of the satisfaction level of migrants in East and South districts of Sikkim. This study also finds out other aspects of migration which may need to be explored for understanding the complex nature of migration processes. Following aspects can be emphasized for further research-

- i) The present study has been limited to East and South districts of Sikkim if another research would be conducted in other two districts of the state namely West and North districts the result may vary, because the perceptions and necessity of migrants may have differed from area to area.
- ii) The present study has been conducted only in structure and socio-economic conditions of in-migrants in the study area. A study may also be conducted on other aspects of migration like environmental, political impact etc.
- iii) A study may also be conducted on the spatial distribution of migrants in the study area.
- iv) The present study examines only on factors, patterns, structure and composition, socio-economic conditions and perceptions on level of satisfaction of migrants in the study area, but the consequences of in-migration in the study area are left out in this study. So, imminent researchers may study the consequences of in-migration and its effect on social and economic changes in the study area.

The scope of further study will have a greater impact if it is conducted over the different parts of the country. India has several diversities ethnically and economically. The level of education, the mixture of manifold values and beliefs and the financial disparity lead to different perceptions among the migrants.

7.5 Conclusions

It would be concluded that there is a wide disparity regarding socio-economic conditions among migrants in the area. Different variables of socio-economic conditions show that migrants of the study area are considered as a weaker section of

the society. The analysis of Socio-Economic index also shows that marked variations exist among the migrants in the study area. So, to reduce the socio-economic disparities and to establish an egalitarian society as a whole a holistic approach is required to fulfil the developmental gap among the migrants of the East and South districts of Sikkim. There are some variations in socio-economic conditions of the migrants, but it should have to be alleviated for the vindication of an equilibrium society in the study area. Without proper development in the area, some social problems will appear in the near future. So, developmental planning is required by the respective Government and other non-governmental organisations for especially weaker sections among the in-migrants in terms of socio-economic aspects in the study area. Equality between native population and migrants' population has to be erected for a sacred society in the study area.

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Appendices

20) Amount of monthly expenditure:

Items	Monthly expenditure in Rs.
1. Food/drinks	
2. Heating/ Electricity	
3. Clothing	
4. Health	
5. Education	
6. Travel/ Entertainment	
7. Others (Specify)_____	

21) Do you have any savings: **Yes/ No**

22) If yes, then types of savings: **Govt. / Private/ Post office/ others, Amount of annual savings (Rs.)**

23) Purpose of savings:

24) Does your household currently have a loan? **Yes / No, If yes, then Amount (Rs.) –**

MODULE – IV: HOUSEHOLD STATUS

25) Occupancy tenure of dwelling unit: **Own/ Rented/ Public/ Others**

26) Housing structure: **Pucca / Semi pucca / Kutcha**

A) Basic facilities in the houses:

Facility	Yes (Please Tick)	No (Please Tick)	Source/ State details
Electricity			
Drinking water			
Toilet/ Sanitation			

B) Basic facilities in the locality:

Facility	Yes (Please Tick)	No (Please Tick)	Source/ State details
Solid waste			
Garbage			
Sewerage			

27) Assets owned by the Household:

Household Amenities	Yes (Please Tick)	No (Please Tick)
Television		
Radio		
Tape Recorder		
CD Player		
Two-wheeler		
Electric Mixer Grinder / Food Processor		
Air cooler		
Air conditioner		
Washing Machine		
Car/jeep		
Computer		
Refrigerator		
Geyser		
Telephone		
Mobile		
Inverter		

MODULE –V: MIGRATION STATUS

28) What your Place of Last Residence? _____

29) Did your family migrate to here with you? **Yes/ No**

30) Household size in home residence:

31) If no, then where your family live now

32) What were their reasons to migrate?

A) Economic B) Social C) Educational D) Political E) Religious F) others

MODULE – VI: LEVEL OF SATISFACTION

33) Satisfaction with that in mind, please rate the following statements based on your own personal vales (Very dissatisfied to very satisfied)

Sl. No.	How satisfied are you with	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
		Please Tick (√) in the appropriate box in below				
1	Physical and mental health					
2	Sleeping					
3	Present job					
4	Savings					
5	Amount of remittance					

34) Satisfaction with that in mind, please rate the following statements based on your own personal vales (All of the time to none of the time)

Sl. No.	How satisfied are you with	All of the time	Most of the time	Some of the time	Little of the time	None of the time
		Please Tick (√) in the appropriate box in below				
1	Happiness					
2	Calmness					
3	Blueness					
4	Cheerless					
5	Nervousness					

35) What are the most important changes adopting to the new life style in Sikkim?

A) Learning a new language:

B) Obeying the new laws and rules:

C) Getting accustomed to the local food:

D) Others (Specify):

36) What are the changes you are not willing to do?

- A) Changing religion:
- B) Giving up my Native citizenship:
- C) Marrying someone who does not belong to my native Place:

37) Do you think people do not migrate to Sikkim: **Yes/ No/ partly/ I don't know**

38) *Problems faced by the Respondent:*

39) *Observation by the Surveyor:*

Signature of the Surveyor with Date

Appendix – B

Appendix B.1 Crop combination of the East district

Types of Crop Combination	Mono Crop Combination				
Standard Rate (%)	100	0	0	0	0
Actual Rate (%)	49.4	26.89	14.11	4.61	4.17
Deviation (d)	50.6	-26.89	-14.11	-4.61	-4.17
d ²	2560.36	723.072	199.092	21.2521	17.3889
Σd^2	3521.165				
$\Sigma d^2/n$	3521.165				
Types of Crop Combination	Two Crop Combination				
Standard Rate (%)	50	50	0	0	0
Actual Rate (%)	49.4	26.89	14.11	4.61	4.17
Deviation (d)	0.6	23.11	-14.11	-4.61	-4.17
d ²	0.36	534.072	199.092	21.2521	17.3889
Σd^2	772.165				
$\Sigma d^2/n$	386.082				
Types of Crop Combination	Three Crop Combination				
Standard Rate (%)	33.33	33.33	33.33	0	0
Actual Rate (%)	49.4	26.89	14.11	4.61	4.17
Deviation (d)	-16.07	6.44	19.22	-4.61	-4.17
d ²	258.245	41.4736	369.408	21.2521	17.3889
Σd^2	707.768				
$\Sigma d^2/n$	235.923				
Types of Crop Combination	Four Crop Combination				
Standard Rate (%)	25	25	25	25	25
Actual Rate (%)	49.4	26.89	14.11	4.61	4.17
Deviation (d)	-24.4	-1.89	10.89	20.39	20.83
d ²	595.36	3.5721	118.592	415.752	433.889
Σd^2	1567.165				
$\Sigma d^2/n$	391.791				
Types of Crop Combination	Five Crop Combination				
Standard Rate (%)	20	20	20	20	20
Actual Rate (%)	49.4	26.89	14.11	4.61	4.17
Deviation (d)	-29.4	-6.89	5.89	15.39	15.83
d ²	864.36	47.4721	34.6921	236.852	250.589
Σd^2	1433.965				
$\Sigma d^2/n$	286.793				

Source: Department of Food Security & Agriculture Development, Government of Sikkim.

*Computation by researcher

Appendix B.2 Crop combination of the South district

Types of Crop Combination	Mono Crop Combination				
Standard Rate (%)	100	0	0	0	0
Actual Rate (%)	61.68	13.23	12.11	9.05	3.23
Deviation (d)	38.32	-13.23	-12.11	-9.05	-3.23
d ²	1468.42	175.033	146.652	81.9025	10.4329
Σd^2	1882.443				
$\Sigma d^2/n$	1882.443				
Types of Crop Combination	Two Crop Combination				
Standard Rate (%)	50	50	0	0	0
Actual Rate (%)	61.68	13.23	12.11	9.05	3.23
Deviation (d)	-11.68	36.77	-12.11	-9.05	-3.23
d ²	136.422	1352.03	146.652	81.9025	10.4329
Σd^2	1727.442				
$\Sigma d^2/n$	863.721				
Types of Crop Combination	Three Crop Combination				
Standard Rate (%)	33.33	33.33	33.33	0	0
Actual Rate (%)	61.68	13.23	12.11	9.05	3.23
Deviation (d)	-28.35	20.1	21.22	-9.05	-3.23
d ²	803.723	404.01	450.288	81.9025	10.4329
Σd^2	1750.356				
$\Sigma d^2/n$	583.452				
Types of Crop Combination	Four Crop Combination				
Standard Rate (%)	25	25	25	25	0
Actual Rate (%)	61.68	13.23	12.11	9.05	3.23
Deviation (d)	-36.68	11.77	12.89	15.95	-3.23
d ²	1345.42	138.533	166.152	254.403	10.4329
Σd^2	1914.943				
$\Sigma d^2/n$	478.736				
Types of Crop Combination	Five Crop Combination				
Standard Rate (%)	20	20	20	20	20
Actual Rate (%)	61.68	13.23	12.11	9.05	3.23
Deviation (d)	-41.68	6.77	7.89	10.95	16.77
d ²	1737.22	45.8329	62.2521	119.903	281.233
Σd^2	2246.443				
$\Sigma d^2/n$	449.289				

Source: Department of Food Security & Agriculture Development, Government of Sikkim.

*Computation by researcher

Appendix B.3 Socio-economic Index Value of East District

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
1	1	0.81	0.00	0.60	0.49	0.83	0.72
2	1	0.94	0.27	0.74	0.59	0.53	0.63
3	0.8	0.63	0.18	0.54	0.06	0.35	0.44
4	0.8	0.81	0.00	0.54	0.39	0.80	0.67
5	0.8	1.00	0.00	0.60	0.00	0.33	0.47
6	1	0.63	0.27	0.63	0.18	0.39	0.51
7	0.6	0.63	0.00	0.41	0.10	0.03	0.22
8	1	0.94	0.00	0.65	0.29	0.76	0.70
9	1	0.31	0.00	0.44	0.06	0.35	0.40
10	0.8	0.63	0.27	0.57	0.39	0.80	0.68
11	0.4	0.31	0.00	0.24	0.02	0.34	0.29
12	0.2	0.31	0.00	0.17	0.08	0.36	0.27
13	0.2	0.63	0.00	0.28	0.12	0.37	0.32
14	0.8	0.31	0.00	0.37	0.04	0.35	0.36
15	0.8	0.63	0.18	0.54	0.08	0.36	0.45
16	0	0.63	0.00	0.21	0.08	0.36	0.28
17	0.2	0.63	0.00	0.28	0.06	0.35	0.31
18	0.6	0.31	0.55	0.49	0.13	0.38	0.43
19	0.8	0.81	0.00	0.54	0.00	0.33	0.44
20	0.6	0.63	0.00	0.41	0.04	0.68	0.54
21	0.2	0.63	0.00	0.28	0.08	0.36	0.32
22	0.4	0.63	0.00	0.34	0.39	0.80	0.57
23	0.2	0.63	0.00	0.28	0.12	0.37	0.32
24	0.8	0.31	0.00	0.37	0.04	0.35	0.36
25	0.4	0.63	0.00	0.34	0.18	0.39	0.37
26	0.6	0.63	0.36	0.53	0.69	0.90	0.71
27	0.2	0.63	0.00	0.28	0.10	0.37	0.32
28	0.8	0.63	0.45	0.63	0.18	0.39	0.51
29	0.4	0.63	0.00	0.34	0.06	0.35	0.35
30	0.6	0.94	0.00	0.51	0.13	0.38	0.45
31	0	0.63	0.00	0.21	0.08	0.36	0.28
32	0.8	0.31	0.55	0.55	0.08	0.36	0.46
33	0.6	0.31	0.00	0.30	0.08	0.36	0.33
34	0.6	0.00	0.27	0.29	0.13	0.38	0.33
35	0.2	0.63	0.00	0.28	0.10	0.03	0.15
36	0.8	0.63	0.00	0.48	0.03	0.34	0.41
37	0.4	0.31	0.00	0.24	0.02	0.34	0.29
38	0.8	0.63	0.45	0.63	0.18	0.39	0.51
39	0.2	0.63	0.00	0.28	0.10	0.03	0.15
40	0.8	0.63	0.00	0.48	0.08	0.69	0.58
41	0.8	0.81	0.00	0.54	0.39	0.80	0.67

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
42	0.6	0.00	0.27	0.29	0.13	0.38	0.33
43	0.2	0.63	0.00	0.28	0.10	0.03	0.15
44	0.2	0.63	0.00	0.28	0.08	0.36	0.32
45	0.4	0.63	0.00	0.34	0.08	0.69	0.52
46	0.2	0.31	0.00	0.17	0.08	0.36	0.27
47	0.6	0.63	0.00	0.41	0.02	0.34	0.37
48	1	0.63	0.00	0.54	0.03	0.34	0.44
49	0.8	0.63	0.00	0.48	0.08	0.69	0.58
50	0.2	0.31	0.00	0.17	0.08	0.36	0.27
51	1	0.63	0.00	0.54	0.06	0.35	0.45
52	0	0.00	0.00	0.00	0.06	0.35	0.18
53	0.4	0.00	0.00	0.13	0.10	0.37	0.25
54	0.6	0.63	0.00	0.41	0.18	0.39	0.40
55	1	0.94	0.00	0.65	0.29	0.76	0.70
56	0.8	0.63	0.00	0.48	0.10	0.37	0.42
57	0.8	0.63	0.00	0.48	0.08	0.36	0.42
58	0.2	0.00	0.00	0.07	0.06	0.35	0.21
59	0.4	0.63	0.00	0.34	0.06	0.35	0.35
60	0.8	0.63	0.00	0.48	0.14	0.71	0.59
61	1	0.63	0.73	0.78	0.49	0.50	0.64
62	0.4	0.63	0.00	0.34	0.06	0.35	0.35
63	0.6	0.94	0.00	0.51	0.13	0.38	0.45
64	0.8	0.63	0.00	0.48	0.10	0.37	0.42
65	1	0.63	0.00	0.54	0.08	0.36	0.45
66	0.6	0.63	0.00	0.41	0.04	0.35	0.38
67	0.6	0.63	0.00	0.41	0.13	0.71	0.56
68	1	0.94	0.18	0.71	0.49	0.50	0.60
69	0.4	0.63	0.00	0.34	0.08	0.36	0.35
70	1	0.00	0.00	0.33	0.06	0.35	0.34
71	0.4	0.31	0.00	0.24	0.02	0.34	0.29
72	0.4	0.31	0.00	0.24	0.07	0.36	0.30
73	0.6	0.63	0.00	0.41	0.08	0.36	0.38
74	0.6	0.63	0.00	0.41	0.14	0.38	0.39
75	0.8	0.63	0.00	0.48	0.08	0.69	0.58
76	0.8	0.63	0.00	0.48	0.08	0.36	0.42
77	0.4	0.31	0.00	0.24	0.08	0.36	0.30
78	0.4	0.63	0.00	0.34	0.08	0.69	0.52
79	0.6	0.63	0.00	0.41	0.02	0.34	0.37
80	1	0.63	0.00	0.54	0.03	0.34	0.44
81	0.2	0.63	0.00	0.28	0.06	0.35	0.31
82	0.2	0.00	0.00	0.07	0.08	0.69	0.38
83	0.4	0.63	0.00	0.34	0.10	0.37	0.35

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
84	1	0.63	0.00	0.54	0.18	0.39	0.47
85	0.8	0.63	0.00	0.48	0.12	0.37	0.42
86	0.4	0.94	0.00	0.45	0.18	0.73	0.59
87	0.4	0.31	0.00	0.24	0.03	0.34	0.29
88	0.4	0.63	0.00	0.34	0.13	0.71	0.53
89	0.4	0.63	0.00	0.34	0.08	0.36	0.35
90	1	0.00	0.36	0.45	0.49	0.50	0.48
91	0.6	0.63	0.27	0.50	0.08	0.69	0.60
92	0.4	0.63	0.00	0.34	0.10	0.70	0.52
93	0.4	0.63	0.00	0.34	0.06	0.35	0.35
94	0.8	0.63	0.00	0.48	0.12	0.71	0.59
95	1	0.00	0.00	0.33	0.03	0.34	0.34
96	0.6	0.63	0.55	0.59	0.18	0.73	0.66
97	0.6	0.63	0.00	0.41	0.39	0.46	0.44
98	0.2	0.63	0.00	0.28	0.14	0.38	0.33
99	0.4	0.31	0.00	0.24	0.07	0.36	0.30
100	0.6	0.63	0.00	0.41	0.13	0.71	0.56
101	0.4	0.63	0.00	0.34	0.08	0.03	0.18
102	0.4	0.63	0.00	0.34	0.02	0.34	0.34
103	0.4	0.63	0.00	0.34	0.07	0.36	0.35
104	0.8	0.63	0.27	0.57	0.39	0.80	0.68
105	0.4	0.31	0.00	0.24	0.02	0.34	0.29
106	0.2	0.31	0.00	0.17	0.08	0.36	0.27
107	0.2	0.63	0.00	0.28	0.12	0.71	0.49
108	0.2	0.63	0.00	0.28	0.10	0.37	0.32
109	0.4	0.00	0.55	0.32	0.23	0.74	0.53
110	0.4	0.00	0.00	0.13	0.12	0.37	0.25
111	0.6	0.63	0.00	0.41	0.29	0.76	0.59
112	0.4	0.63	0.00	0.34	0.13	0.04	0.19
113	0.6	0.00	0.36	0.32	0.13	0.38	0.35
114	0.2	0.63	0.00	0.28	0.10	0.37	0.32
115	0.2	0.63	0.00	0.28	0.10	0.70	0.49
116	0.4	0.63	0.00	0.34	0.06	0.69	0.51
117	0.2	0.63	0.00	0.28	0.06	0.35	0.31
118	0.2	0.00	0.00	0.07	0.08	0.69	0.38
119	0.4	0.63	0.00	0.34	0.10	0.37	0.35
120	0.6	0.63	0.00	0.41	0.08	0.69	0.55
121	0.4	0.63	0.00	0.34	0.08	0.69	0.52
122	0.6	0.63	0.00	0.41	0.02	0.34	0.37
123	1	0.63	0.00	0.54	0.03	0.34	0.44
124	0.8	0.63	0.00	0.48	0.49	0.83	0.65
125	0.6	0.63	0.00	0.41	0.13	0.71	0.56

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
126	0.2	0.63	0.00	0.28	0.08	0.36	0.32
127	0.4	0.00	0.55	0.32	0.08	0.69	0.50
128	0.4	0.00	0.00	0.13	0.12	0.37	0.25
129	0	0.00	0.00	0.00	0.06	0.35	0.18
130	0.8	1.00	0.00	0.60	0.00	0.33	0.47
131	0.6	0.63	0.64	0.62	0.39	0.80	0.71
132	0.2	0.63	0.00	0.28	0.10	0.70	0.49
133	0.8	0.63	0.00	0.48	0.06	0.35	0.41
134	0.2	0.63	0.00	0.28	0.08	0.36	0.32
135	0.2	0.00	0.00	0.07	0.06	0.35	0.21
136	0.2	0.63	0.00	0.28	0.14	0.38	0.33
137	0.4	0.31	0.00	0.24	0.07	0.36	0.30
138	0	0.00	0.00	0.00	0.06	0.35	0.18
139	0.8	0.63	0.00	0.48	0.08	0.36	0.42
140	0.4	0.31	0.00	0.24	0.08	0.36	0.30
141	0.4	0.63	0.00	0.34	0.08	0.69	0.52
142	0.6	0.63	0.00	0.41	0.02	0.34	0.37
143	1	0.00	0.00	0.33	0.03	0.34	0.34
144	0.6	0.63	0.36	0.53	0.18	0.73	0.63
145	0.6	0.63	0.00	0.41	0.39	0.46	0.44
146	0.6	0.63	0.00	0.41	0.13	0.71	0.56
147	0.2	0.63	0.00	0.28	0.10	0.37	0.32
148	0.4	0.00	0.55	0.32	0.23	0.74	0.53
149	0.4	0.00	0.00	0.13	0.12	0.37	0.25
150	0.6	0.63	0.00	0.41	0.29	0.76	0.59
151	0.4	0.63	0.00	0.34	0.13	0.04	0.19
152	0.6	0.00	0.36	0.32	0.13	0.38	0.35
153	0.6	0.63	0.00	0.41	0.06	0.35	0.38
154	0.6	0.63	0.00	0.41	0.14	0.38	0.39
155	0	0.63	0.00	0.21	0.08	0.36	0.28
156	1	0.63	0.00	0.54	0.06	0.35	0.45
157	0	0.00	0.00	0.00	0.06	0.35	0.18
158	0.2	0.63	0.00	0.28	0.10	0.70	0.49
159	1	0.63	0.73	0.78	0.49	0.50	0.64
160	0.4	0.63	0.00	0.34	0.06	0.35	0.35
161	0.6	0.63	0.36	0.53	0.29	0.76	0.65
162	0.2	0.63	0.00	0.28	0.10	0.37	0.32
163	0.2	0.63	0.00	0.28	0.12	0.71	0.49
164	0.4	0.63	0.00	0.34	0.18	0.39	0.37
165	0.6	0.63	0.45	0.56	0.69	0.90	0.73
166	0.2	0.63	0.00	0.28	0.10	0.37	0.32
167	0.2	0.00	0.00	0.07	0.22	0.41	0.24

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
168	0	0.00	0.00	0.00	0.06	0.35	0.18
169	0.4	0.00	0.00	0.13	0.10	0.37	0.25
170	0.6	0.63	0.00	0.41	0.18	0.39	0.40
171	0.2	0.63	0.00	0.28	0.10	0.70	0.49
172	0	0.00	0.00	0.00	0.12	0.37	0.19
173	0.4	0.63	0.00	0.34	0.08	0.36	0.35
174	0.4	0.63	0.00	0.34	0.08	0.69	0.52
175	0.6	0.94	0.36	0.63	0.29	0.76	0.70
176	0.6	0.94	0.00	0.51	0.29	0.76	0.64
177	0.2	0.63	0.00	0.28	0.10	0.37	0.32
178	0	0.63	0.00	0.21	0.08	0.36	0.28
179	0.2	0.63	0.00	0.28	0.10	0.70	0.49
180	0.6	0.00	0.27	0.29	0.13	0.38	0.33
181	0.2	0.63	0.00	0.28	0.10	0.03	0.15
182	0.2	0.63	0.00	0.28	0.08	0.36	0.32
183	0.4	0.63	0.00	0.34	0.08	0.69	0.52
184	0	0.63	0.00	0.21	0.08	0.36	0.28
185	0.6	0.94	0.00	0.51	0.08	0.69	0.60
186	0.2	0.63	0.00	0.28	0.08	0.69	0.48
187	0.2	0.00	0.00	0.07	0.06	0.35	0.21
188	0	0.63	0.00	0.21	0.08	0.36	0.28
189	0.2	0.63	0.00	0.28	0.06	0.35	0.31
190	0.6	0.00	0.55	0.38	0.13	0.38	0.38
Total	94.4	98.38	12.55	68.44	25.30	87.43	77.94

Appendix B.4 Different variables of Socio-Economic Index of East District

(a) Health Index (HI)

Level	HI	Number	Percentage
Low	< 0.50	100	52.63
High	> 0.50	90	47.37

Mean Value: 0.50

(b) Education Index (EDI)

Level	EDI	Number	Percentage
Low	< 0.52	50	26.32
High	> 0.52	140	73.68

Mean Value: 0.52

(c) Demographic Index (DI)

Level	DI	Number	Percentage
Low	< 0.07	159	83.68
High	> 0.07	31	16.32

Mean Value: 0.07

(d) Social Index (SI)

Level	SI	Number	Percentage
Low	< 0.36	108	56.84
High	> 0.36	82	43.16

Mean Value: 0.36

(e) Income Index (INI)

Level	INI	Number	Percentage
Low	< 0.13	131	68.95
Moderate	0.13	16	8.42
High	> 0.13	43	22.63

Mean Value: 0.13

(f) Economic Index (EI)

Level	EI	Number	Percentage
Low	< 0.46	128	67.37
Moderate	0.46	2	1.05
High	> 0.46	60	31.58

Mean Value: 0.46

Appendix B.5 Socio-economic Index Value of South District

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
1	0.2	0.31	0.00	0.17	0.08	0.36	0.27
2	0.6	0.00	0.00	0.20	0.08	0.36	0.28
3	0.4	0.63	0.00	0.34	0.20	0.40	0.37
4	0.4	0.94	0.00	0.45	0.18	0.73	0.59
5	0.2	0.63	0.00	0.28	0.08	0.36	0.32
6	0.4	0.63	0.00	0.34	0.08	0.69	0.52
7	0.2	0.00	0.00	0.07	0.10	0.37	0.22
8	0.4	0.63	0.00	0.34	0.10	0.37	0.35
9	0.6	0.00	0.00	0.20	0.08	0.36	0.28
10	0.4	0.63	0.00	0.34	0.18	0.39	0.37
11	0	0.00	0.00	0.00	0.06	0.35	0.18
12	0.6	0.31	0.00	0.30	0.08	0.03	0.17
13	0.2	0.63	0.00	0.28	0.14	0.38	0.33
14	0.2	0.63	0.00	0.28	0.12	0.71	0.49
15	0.4	0.00	0.00	0.13	0.08	0.36	0.25
16	0.8	0.63	0.00	0.48	0.49	0.83	0.65
17	0.6	0.63	0.00	0.41	0.13	0.71	0.56
18	0.6	0.63	0.00	0.41	0.08	0.36	0.38
19	0.4	0.63	0.00	0.34	0.39	0.80	0.57
20	0.2	0.63	0.00	0.28	0.12	0.37	0.32
21	0.6	0.63	0.73	0.65	0.08	0.36	0.51
22	0.6	0.63	0.00	0.41	0.08	0.36	0.38
23	0.2	0.63	0.00	0.28	0.08	0.03	0.15
24	0.4	0.31	0.00	0.24	0.14	0.38	0.31
25	0.6	0.63	0.91	0.71	0.08	0.36	0.54
26	0.2	0.63	0.00	0.28	0.06	0.35	0.31
27	0.2	0.00	0.00	0.07	0.10	0.70	0.38
28	0.4	0.63	0.00	0.34	0.09	0.36	0.35
29	1	0.63	0.00	0.54	0.18	0.39	0.47
30	0.4	0.63	0.00	0.34	0.06	0.35	0.35
31	0.8	0.63	0.00	0.48	0.08	0.03	0.25
32	0.2	0.63	0.00	0.28	0.06	0.35	0.31
33	0.2	0.00	0.00	0.07	0.10	0.70	0.38
34	0	0.63	0.55	0.39	0.06	0.35	0.37
35	0.4	0.63	0.00	0.34	0.08	0.36	0.35
36	0.6	0.63	0.00	0.41	0.10	0.37	0.39
37	0.6	0.63	0.00	0.41	0.08	0.69	0.55
38	0.8	0.63	0.36	0.60	0.13	0.04	0.32
39	0.4	0.00	0.00	0.13	0.02	0.34	0.24
40	0.8	0.31	0.64	0.58	0.14	0.38	0.48
41	0.6	0.63	0.27	0.50	0.10	0.37	0.43

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
42	0.4	0.63	0.00	0.34	0.08	0.36	0.35
43	0.4	0.63	0.00	0.34	0.06	0.35	0.35
44	0.6	0.00	0.00	0.20	0.10	0.70	0.45
45	0.4	0.94	0.00	0.45	0.18	0.73	0.59
46	0.4	0.00	0.00	0.13	0.02	0.34	0.24
47	0.4	0.63	0.00	0.34	0.16	0.72	0.53
48	0.4	0.63	0.00	0.34	0.08	0.36	0.35
49	0.4	0.63	0.00	0.34	0.06	0.35	0.35
50	0.8	0.63	0.00	0.48	0.10	0.03	0.25
51	0.4	0.63	0.00	0.34	0.08	0.69	0.52
52	0.8	0.63	0.00	0.48	0.08	0.03	0.25
53	0.6	0.31	0.00	0.30	0.08	0.36	0.33
54	0.4	0.00	0.55	0.32	0.23	0.74	0.53
55	0.4	0.00	0.00	0.13	0.12	0.37	0.25
56	0.6	0.00	0.64	0.41	0.08	0.36	0.39
57	0.8	0.63	0.00	0.48	0.06	0.35	0.41
58	0.6	0.63	0.00	0.41	0.08	0.36	0.38
59	0.6	0.00	0.00	0.20	0.08	0.03	0.11
60	0.6	0.31	0.00	0.30	0.08	0.36	0.33
61	0.4	0.31	0.00	0.24	0.07	0.36	0.30
62	0.6	0.63	0.27	0.50	0.10	0.37	0.43
63	0.4	0.63	0.00	0.34	0.02	0.34	0.34
64	0.6	0.63	0.00	0.41	0.10	0.70	0.55
65	0.6	0.63	0.36	0.53	0.19	0.06	0.30
66	0.6	0.00	0.64	0.41	0.08	0.36	0.39
67	0.4	0.63	0.00	0.34	0.08	0.03	0.18
68	0.6	0.00	0.64	0.41	0.29	0.76	0.59
69	0.8	0.63	0.00	0.48	0.10	0.03	0.25
70	0.2	0.63	0.00	0.28	0.08	0.03	0.15
71	0.6	0.63	1.00	0.74	0.10	0.70	0.72
72	0.6	0.63	0.00	0.41	0.18	0.39	0.40
73	0.2	0.63	0.00	0.28	0.18	0.39	0.33
74	0.6	0.63	0.00	0.41	0.10	0.03	0.22
75	0.8	0.63	0.00	0.48	0.06	0.35	0.41
76	0.4	0.31	0.00	0.24	0.07	0.36	0.30
77	0.6	0.63	0.00	0.41	0.13	0.71	0.56
78	0.4	0.63	0.00	0.34	0.08	0.03	0.18
79	0.4	0.31	0.00	0.24	0.02	0.34	0.29
80	0.4	0.31	0.00	0.24	0.07	0.36	0.30
81	0.4	0.63	0.00	0.34	0.16	0.72	0.53
82	0.8	0.63	0.00	0.48	0.08	0.03	0.25
83	0.8	0.63	0.00	0.48	0.16	0.05	0.26

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
84	0.4	0.63	0.00	0.34	0.10	0.03	0.19
85	0.2	0.63	0.00	0.28	0.08	0.36	0.32
86	0.6	0.00	0.00	0.20	0.10	0.70	0.45
87	0.6	0.00	0.64	0.41	0.08	0.36	0.39
88	0.2	0.00	0.00	0.07	0.06	0.35	0.21
89	0.2	0.00	0.00	0.07	0.10	0.37	0.22
90	0.8	0.63	0.00	0.48	0.08	0.03	0.25
91	0.6	0.63	0.00	0.41	0.06	0.35	0.38
92	0.6	0.63	0.27	0.50	0.08	0.69	0.60
93	0.8	0.63	0.00	0.48	0.08	0.36	0.42
94	0.6	0.94	0.00	0.51	0.13	0.38	0.45
95	0.6	0.63	0.00	0.41	0.08	0.36	0.38
96	0.6	0.63	0.00	0.41	0.14	0.38	0.39
97	0.4	0.63	0.00	0.34	0.08	0.36	0.35
98	0.6	0.63	0.55	0.59	0.10	0.03	0.31
99	0.6	0.00	0.00	0.20	0.05	0.02	0.11
100	0.6	0.63	0.00	0.41	0.08	0.69	0.55
101	0.8	0.63	0.36	0.60	0.13	0.04	0.32
102	0.6	0.63	0.00	0.41	0.10	0.37	0.39
103	0.8	0.63	0.00	0.48	0.10	0.37	0.42
104	0.8	0.94	0.00	0.58	1.00	0.67	0.62
105	0.8	0.81	0.00	0.54	0.00	0.33	0.44
106	0.6	0.81	0.00	0.47	0.00	0.00	0.24
107	0.8	0.81	0.00	0.54	0.00	0.33	0.44
108	0.4	0.63	0.00	0.34	0.06	0.35	0.35
109	0.4	0.63	0.00	0.34	0.29	0.43	0.39
110	0.6	0.63	0.00	0.41	0.10	0.37	0.39
111	0.6	0.63	0.00	0.41	0.08	0.36	0.38
112	0.2	0.63	0.55	0.46	0.18	0.39	0.43
113	0.6	0.63	0.00	0.41	0.10	0.03	0.22
114	0.8	0.63	0.00	0.48	0.49	0.83	0.65
115	0.6	0.63	0.00	0.41	0.13	0.71	0.56
116	0.2	0.63	0.00	0.28	0.10	0.37	0.32
117	0.4	0.00	0.55	0.32	0.23	0.74	0.53
118	0.4	0.00	0.00	0.13	0.12	0.37	0.25
119	1	0.94	0.00	0.65	1.00	1.00	0.82
120	0.4	0.63	0.00	0.34	0.00	0.00	0.17
121	0.2	0.00	0.00	0.07	0.10	0.37	0.22
122	0.4	0.63	0.00	0.34	0.10	0.37	0.35
123	0.2	0.63	0.00	0.28	0.08	0.03	0.15
124	0.2	0.63	0.00	0.28	0.08	0.03	0.15
125	0.4	0.63	0.00	0.34	0.13	0.71	0.53

Sl. No. of Respondents	Health Index	Education Index	Demographic Index	Social Index	Income Index	Economic Index	Socio Economic Index
126	0.2	0.63	0.00	0.28	0.08	0.36	0.32
127	0.4	0.63	0.00	0.34	0.39	0.80	0.57
128	0.2	0.63	0.00	0.28	0.12	0.37	0.32
129	0.2	0.63	0.00	0.28	0.08	0.36	0.32
130	0.4	0.31	0.00	0.24	0.29	0.76	0.50
131	0.2	0.63	0.00	0.28	0.06	0.35	0.31
132	0.2	0.00	0.00	0.07	0.10	0.70	0.38
133	0.2	0.63	0.64	0.49	0.12	0.37	0.43
134	0.2	0.63	0.00	0.28	0.08	0.36	0.32
135	0.2	0.63	0.00	0.28	0.14	0.38	0.33
136	0.2	0.63	0.00	0.28	0.12	0.71	0.49
137	0.2	0.63	0.00	0.28	0.10	0.03	0.15
138	0.4	0.63	0.00	0.34	0.08	0.36	0.35
139	0.2	0.63	0.00	0.28	0.08	0.36	0.32
140	0.4	0.63	0.00	0.34	0.08	0.36	0.35
141	0.4	0.63	0.00	0.34	0.06	0.35	0.35
142	0	0.63	0.55	0.39	0.06	0.35	0.37
143	0.4	0.94	0.00	0.45	0.18	0.73	0.59
144	0.2	0.63	0.00	0.28	0.08	0.36	0.32
145	0.6	0.63	0.00	0.41	0.08	0.36	0.38
146	0.2	0.63	0.00	0.28	0.08	0.03	0.15
147	0.2	0.63	0.00	0.28	0.10	0.03	0.15
148	0.2	0.00	0.45	0.22	0.08	0.36	0.29
149	0.4	0.63	0.00	0.34	0.18	0.39	0.37
150	0	0.00	0.00	0.00	0.06	0.35	0.18
Total	68.6	75.88	12.09	52.19	18.37	57.46	54.82

Appendix B.6 Different variables of Socio-Economic Index of South District

(a) Health Index (HI)

Level	HI	Number	Percentage
Low	< 0.46	88	57.33
High	> 0.46	64	42.67

Mean Value: 0.46

(b) Education Index (EDI)

Level	EDI	Number	Percentage
Low	< 0.51	38	25.33
High	> 0.51	112	74.67

Mean Value: 0.51

(c) Demographic Index (DI)

Level	DI	Number	Percentage
Low	< 0.08	128	85.33
High	> 0.08	22	14.67

Mean Value: 0.08

(d) Social Index (SI)

Level	SI	Number	Percentage
Low	< 0.35	88	58.67
High	> 0.35	62	41.33

Mean Value: 0.35

(e) Income Index (INI)

Level	INI	Number	Percentage
Low	<0.12	108	72
Moderate	0.12	7	4.67
High	>0.12	35	23.33

Mean Value: 0.12

(f) Economic Index (EI)

Level	EI	Number	Percentage
Low	<0.38	103	68.67
Moderate	0.38	6	4
High	>0.38	41	27.33

Mean Value: 0.38

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SELECTED PUBLICATION

STRUCTURE AND COMPOSITION OF IN-MIGRANTS IN SOUTH DISTRICT OF SIKKIM SINCE 1975: A GEOGRAPHICAL STUDY

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Abstract

South Sikkim is a district with a varied physical phenomenon. The impact of climatic change, terrain characteristics and other factors has to be considered for the structure and composition of in-migration in the area. Structure and composition of in-migrants include sex composition, age composition, marital composition, rural-urban composition and occupational structure have been analysed for the study. The study mainly based on secondary sources of data. The demographic structure of migrants and the native population of the study have been analysed and presented by the different statistical and cartographic techniques. Sex ratio of the study area is much higher than male in-migrants; Working group of population are more in-migrated in the study area; married male and female in-migrants have focused into the study area; rural in-migration in the study area is dominating in nature, whereas, occupational structure shows that females are more in-migrated into agricultural sector and males are more in-migrated into other economic activities. But there are some structural disparities between in-migrants and native population, which should be eradicate for the sacred society.

Keywords: *Composition, In-migrants, Native population, South Sikkim, Structure.*

1.1 Introduction

Migration of any place at any time may cause large scale changes in the size and structure of the population (Hassan, 2005). The study of structure and composition of migrants is of vital importance because the birth rate, death rate and migration determine the size of the population, the population growth rate and thus the structure of the population (Jhingan et al., 2005). Sex composition, age composition, rural-urban composition, the economic or occupational composition is more important among the various elements of population composition (Maurya, 2014). Among various elements of population composition, sex composition, age composition and economic composition hold a prime place for the demographers (Chandna, 2006). The separate data for males and females are important for various types of planning and the analysis of others demographic characteristics such as natality, mortality, migration, marital status, economic characteristics, etc. (Hassan, 2005). The balance between the two sexes affects the social and economic relations within a community (Roy, 2015). Age is an important variable in measuring potential school population, potential voting population, potential manpower, future population projections and projections for the requirements of teachers, doctors, technical hands, armed personnel, etc (Kumar, 2009). Age is an important variable in the

studies of mortality, fertility and other demographic characteristics, like dependency ratio, etc. (Namboodiri, 2013). It is in this context that the studies about sex and age composition of a population become important for a population which is engaged in regional analysis. So, the study of structure and composition of the in-migrant population in the South district of Sikkim has great importance to examine the whole population structure in the study area.

1.2 Database and Methodology

This study is based on secondary sources of data. The secondary data were collected from the reports published by the Census of India during 1991 to 2011 and different demographic reports published by the Government of Sikkim during the period of 2001 to 2014. In this study, the changes of structure and composition of in-migrants in South district of Sikkim have been discussed between the census year 1991 and 2011. But due to dissimilarities

in data in 1991 and 2011 census, the researcher also had to use 2001 census data. The demographic structure of migrants and the native population of the study have been analysed and presented by the different statistical and cartographic techniques. These are age structure, sex composition, rural-urban composition, occupational structure, marital status. The data have been analysed statistically with the help of SPSS software version 20.0. Some cartographic techniques have been used to represent the analysed data such as pie diagram, bar diagram etc. by MS excel 2019.

1.3 Objectives

The present study has some objectives, which are:

- 1) To measure the structure of the in-migrants in the South district of Sikkim.
- 2) To measure the composition of the in-migrants in the study area.
- 3) To discuss the problems related to structure and composition of in-migrants in the study area.

1.4 Materials and Methods

1.4.1 About the study area

The study area is bounded by the north district of Sikkim in the north; West district of Sikkim in the west; the state of West Bengal in the south and East district in the east. The study area extends from 27° 4' to 27°31' north latitudes and 88°20' to 88°26'10" east longitudes. According to Census, 2011 Total population of the study area is 146850, which is 24.05% of the total state population out of which 76670 are males and 70180 are females. The total area of the study area is 750 sq. km. which constitute 10.57% of the total geographical area of the state. The density of population of the study area is 196 persons per sq. km. The study area has two urban centres, which are Namchi and Jorethang.

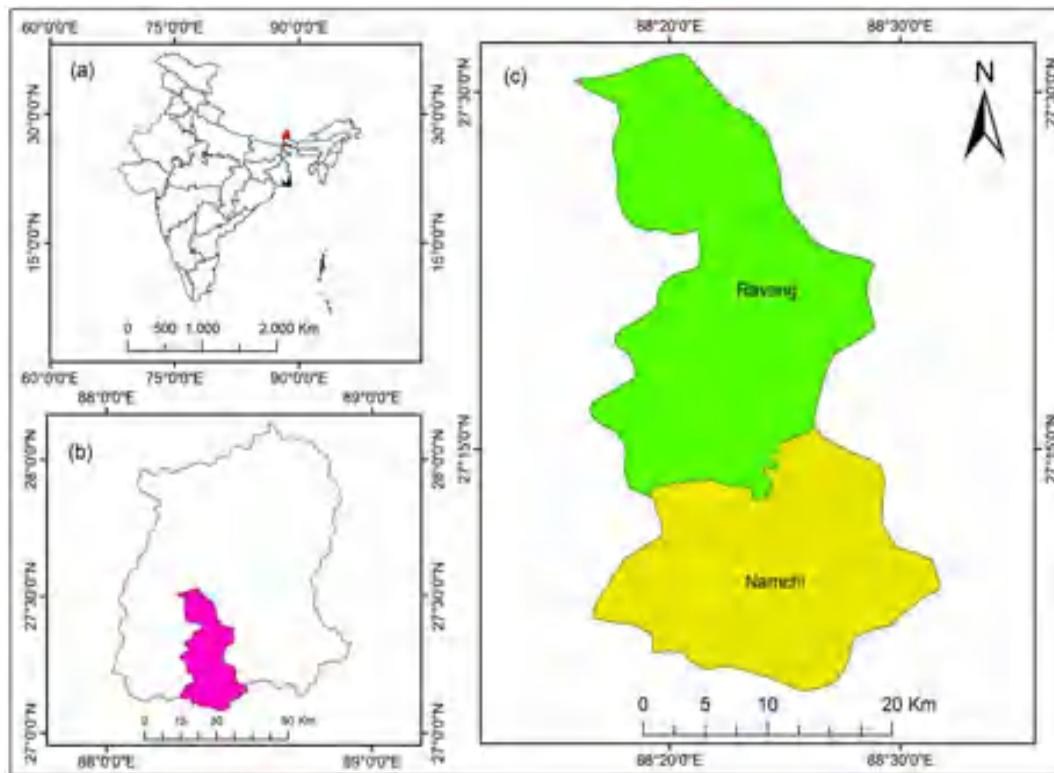


Figure 1 Location map of the study area

1.4.2 Migration about the study area

According to census 2011, South district of Sikkim has total 17390 number of in-migrants in the district, which is 11.84% of the total population of the district. Amongst the in-migrants in the district, 4268 were born in outside of India and 13122 were born in any other states of India. Among 17390 number of in-migrants in the district, 8708 are males and 8682 are females. Whereas, among the in-migrants in the district 12504 are lived in rural areas and only 6181 are lived in urban areas, which indicates rural to rural or urban to rural migration are more vigorous in the district.

1.5 Results and discussion

1.5.1 Sex Composition

Sex composition is one of the most important characteristics of population studies (Sharma, 2012). Changes in sex composition largely affect the underlying socio-economic and cultural pattern in a particular society (Doniwal, 2008). The sex ratio of South district of Sikkim is shown in Table 1, it is found that high sex ratio (1208 female/ 1000 males) among the in-migrant population in South district of Sikkim during 1991. But the sex ratio of urban areas both in-migrants and total population of the district has a very poor sex ratio of 679 and 693 females/ 1000 males during 1991, which was much lower than the national level. In the comparison of sex ratio with total population of south Sikkim female are more in number than male migrants.

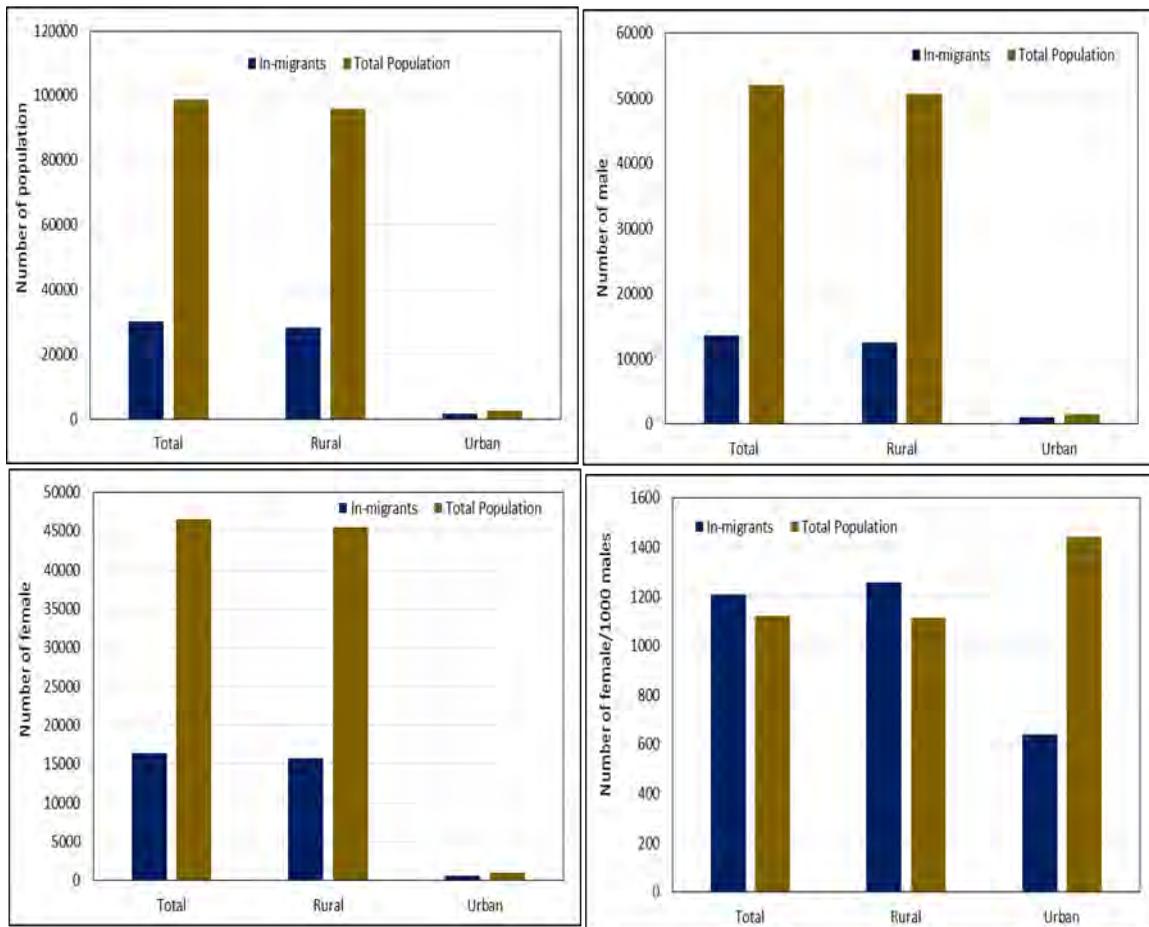


Figure2 Comparison of in-migrants and total population in South district, 1991a. Total population b. Male c. Female and d. Sex ratio

The sex composition of the in-migrants is much higher than that of the general population of the district (Figure 2). There is significant rural-urban differential in the sex ratio, because of female migration due to marriage from adjoining states and migration of male in-migrants from villages of Sikkim to town, in search of better jobs and leaving their families behind in rural areas. The high cost of living, scarce and expensive housing facilities and inadequacy of common amenities in Sikkim put some restrictions on family migration.

In Census 2011, sex ratio is much high among the migrants in comparing to the total population of South district of Sikkim. During the year 2011, the sex ratio among the migrants was 1472 females per one thousand males; it was 1627 for rural areas and 1021 for urban areas of the district. But the sex ratio of the total population of the district was 915 females per one thousand males with 908 in rural areas and 959 in urban areas of the district (Table 2 & Figure 3). The concentration of in-migrants in rural areas of South district of Sikkim is found largely in Sumbuk, Sikkip, Temi-Tarku, Yangyan, Likship. Besides in-migrants of South district of Sikkim is found in the urban centres such as Ravong, Namchi, Jorethang, Namthang.

Table 2 Male-female and sex ratio of in-migrants and total population in South district of Sikkim, 2011

Place of Residence	In-migrants				Total Population			
Place of Residence	Total	Male	Female	Sex ratio	Total	Male	Female	Sex ratio
Total	50948	20611	30337	1472	146850	76670	70180	915
Rural	40350	15357	24993	1627	125651	65848	59803	908
Urban	9448	4674	4774	1021	21199	10822	10377	959

Source: Census of India, 2011

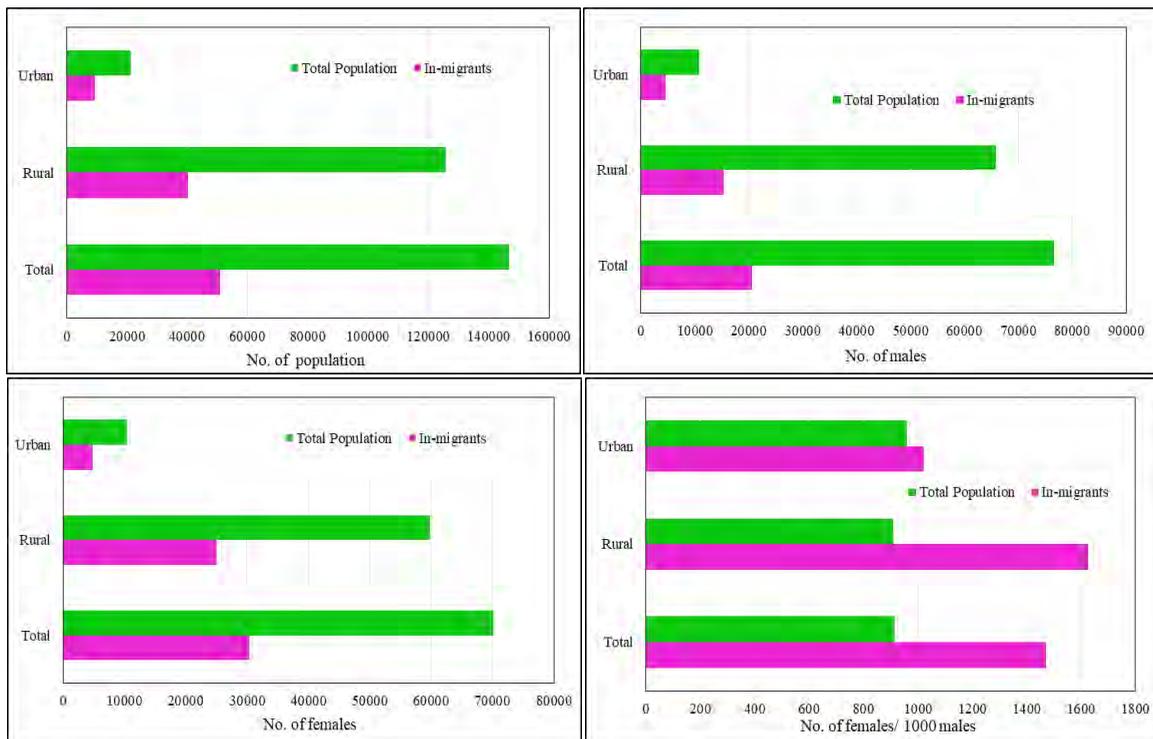


Figure 3 Comparison of in-migrants and total population in South district, 2011

a. Total population b. Male c. Female and d. Sex ratio

1.5.2 Age Structure

The age structure of a population affects key socio-economic conditions of a place (Poston and Bouvier, 2010). Since migration is an age selective phenomenon, therefore it has some impact not only on the source area but also on the destination area (Newbold, 2013). The age-sex pyramid of in-migrants people of south district of Sikkim for 1991 showing that 14 to 34 years age groups are dominating (Table 3). The main causes behind that situation because of the unemployment situation in source states. That is why a large number of young migrants are gathered with their child and family into the south district of Sikkim. Figure 4 shows the age-sex pyramid of in-migrants people of south district of Sikkim, 2011, which revealed that concentration of migrants is working-age group in the district denotes that the economic activities are the main reason of migration into the district.

Table 3 Age-Sex ratio of in-migrants population of South district of Sikkim 1991

Age Group	Males	Females	Males %	Females %
0-14	2519	2392	18.61	14.60
15-19	1195	1264	8.83	7.72
20-24	1454	2177	10.74	13.29
25-29	1635	2451	12.08	14.96
30-34	1495	1937	11.05	11.82
35-39	1375	1492	10.16	9.11
40-44	996	1190	7.36	7.26
45-49	712	882	5.26	5.38
50-54	668	763	4.94	4.66
55-59	492	605	3.64	3.69
60-64	412	514	3.04	3.14
65-69	242	296	1.79	1.81
70-74	182	234	1.34	1.43
75-79	71	84	0.52	0.51
80+	86	102	0.64	0.62

Source: Census of India, 1991

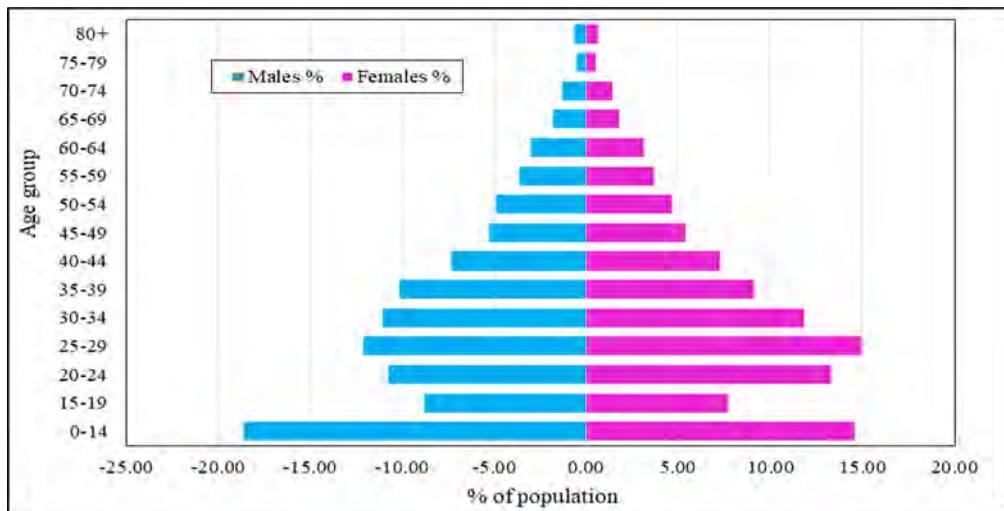


Figure 4 Age-Sex ratio of in-migrants population of South district of Sikkim 1991

The age-sex pyramid of in-migrants people of south district of Sikkim for 2011 showing that 15 to 40 years groups are dominating (Table 4). The main causes behind that situation because of the unemployment situation surrounding states. That is why a large number of young migrants are gathered in South district of Sikkim. It is also expressed in Figure 5 of the age-sex pyramid of in-migrants people of south district of Sikkim, 2011.

Table 4 Age-Sex ratio of in-migrants population of South district of Sikkim, 2011

Age Group	Males	Females	Males %	Females %
0-4	639	612	3.11	2.02
5-9	1015	997	4.94	3.30
10-14	1437	1311	6.99	4.33
15-19	1546	2012	7.52	6.65
20-24	2236	3468	10.88	11.47
25-29	2148	4103	10.45	13.57
30-34	2131	3641	10.37	12.04
35-39	1828	3352	8.90	11.08
40-44	1843	2615	8.97	8.65
45-49	1587	2207	7.72	7.30
50-54	1343	1792	6.54	5.92
55-59	975	1200	4.74	3.97
60-64	677	1004	3.29	3.32
65-69	441	765	2.15	2.53
70-74	323	521	1.57	1.72
75-79	186	321	0.91	1.06
80+	195	325	0.95	1.07

Source: Census of India, 2011

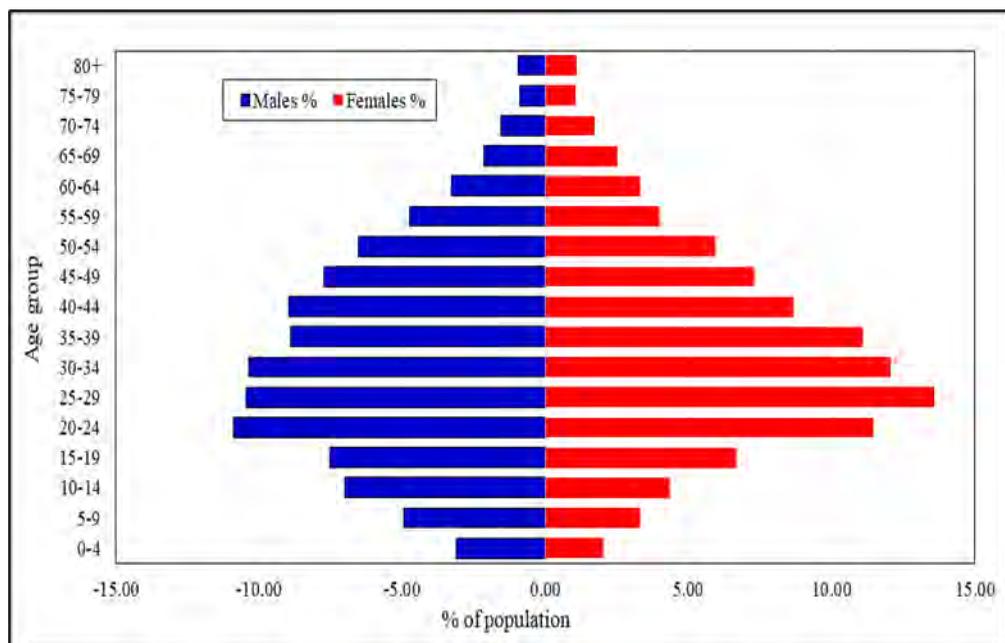


Figure 5 Age-sex pyramid of in-migrants people of South district of Sikkim, 2011

1.5.3 Marital composition

Marital composition is the most important issue to study any socio-cultural set up in the present century (Anonymous, 2001). Marital composition of migrants in the South district of Sikkim shows (Figure 6) that married females are more migrated than males in the district. A total of 4048 numbers of male were migrated into the district during 2001, where 7053 numbers of females were migrated

into the district during 2001. But this scenario is not the same for the unmarried migrants of the district. Among the unmarried migrants of the district during 2001, 4659 were males and 3364 were females. A total of 87 of male widowed and 238 of female widowed were migrated to the district in 2001. About 92 numbers of male and 101 numbers of female were migrated into the district who were separated or divorced with their spouse. It revealed that rate of female migration to the district is high due to the after-marriage system of our society.

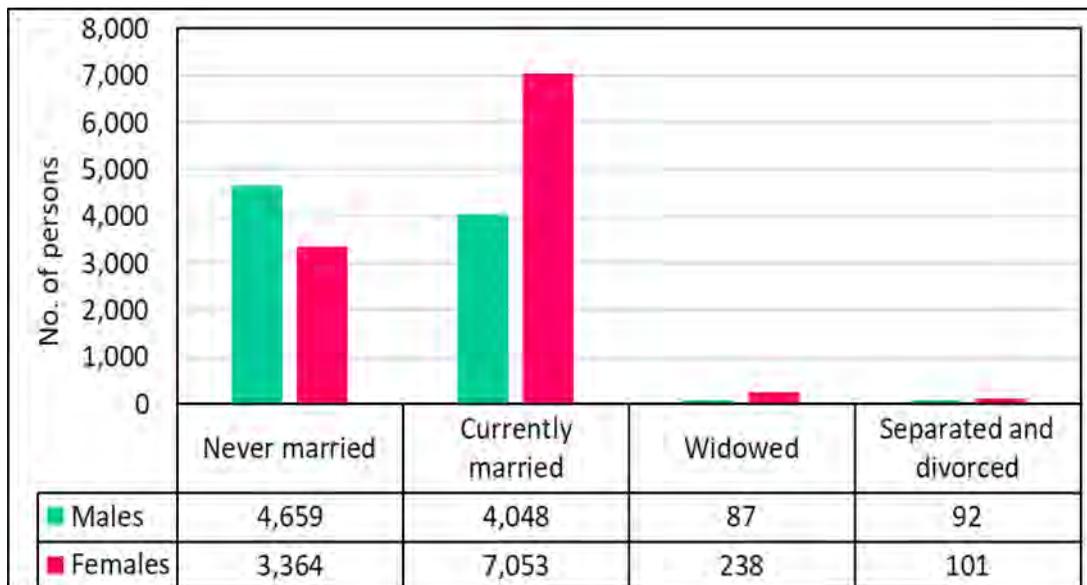


Figure 6 Marital composition of in-migrants of South district of Sikkim, 2001

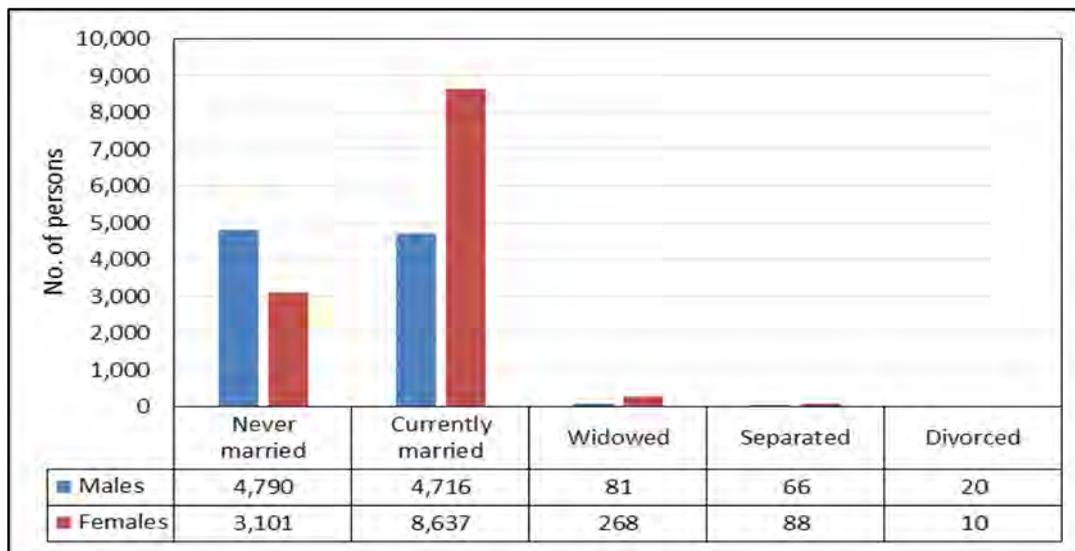


Figure 7 Marital composition of in-migrants of South district of Sikkim, 2011

Figure 7 showing the marital composition of in-migrants people of South district of Sikkim. This figure shows that a lot of unmarried man and women migrated into the district for seeking job opportunities. 4790 number of male persons and 3101 numbers of female persons migrated to South district of Sikkim as unmarried and remained up to 2011. Huge numbers of people were migrated into

the district where number of females were 8637 and males were 4716. It indicates that females are more migrated into the district than male migrants of the district during 2011. A little number of widowed, separated, divorced people migrated in south district of Sikkim.

5.4 Rural-urban Composition

Generally, labour migrants have selected to migrate in urban areas in India. But their concentration of South District of Sikkim has shown the opposite scenario about their working location. There is a large number of migrants working in the rural areas of South district. Figure 8 showing that rural migrants are dominating their distribution in rural or urban areas. Table 5 also reveals that migrants choose to live in rural areas of the district. There are rural migrants of the district was 28337 and 1740 persons in urban areas as all duration of resident. Even 10 years and above residence showing that in rural areas it was 16071 persons and 673 persons in urban areas during 1991. In 1991 female migrants choose to reside in rural area on a large number. The number of female migrants is high compared to male migrants in 1991.

Table 5 Rural-Urban composition of in-migrant people in South district of Sikkim, 1991

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	28337	12559	15778
All durations of residence	Urban	1740	1061	679
Duration of residence less than 1 year	Rural	1,570	942	628
Duration of residence less than 1 year	Urban	206	137	69
Duration of residence 1-4 years	Rural	6,250	3051	3199
Duration of residence 1-4 years	Urban	500	289	211
Duration of residence 5-9 years	Rural	4,446	1879	2567
Duration of residence 5-9 years	Urban	361	211	150
Duration of residence 10 years and above	Rural	16,071	6687	9384
Duration of residence 10 years and above	Urban	673	424	249

Source: Census of India, 1991

Rural-urban composition in 2011 of in-migrants in South District of Sikkim shows the same trends as 1991. But in compare 1991 to 2011 there has some slight increase of in-migrant in urban areas. Though urban area showing a low rate of in-migration with compared to the rural area, it reveals by Figure 8. Some changes also found by Table 6 that in urban areas male and female in-migrants are more or less equal. But in rural area there has a lot of variation as male-female category of in-migrants. From Table 6, it is found that all duration of residence in rural areas male were 14800 and female were 24223. That is why it can be said that in rural areas of the district female in-migrants are gathering in a large number. Duration above 10 years residence in-migrant in urban areas male (2780) and female (2745) are very close. On the other side in-migrants in rural areas male and female has

huge difference, where male is 5797 persons and female are 13070 persons, which is almost 2.5 times than male in-migrants.

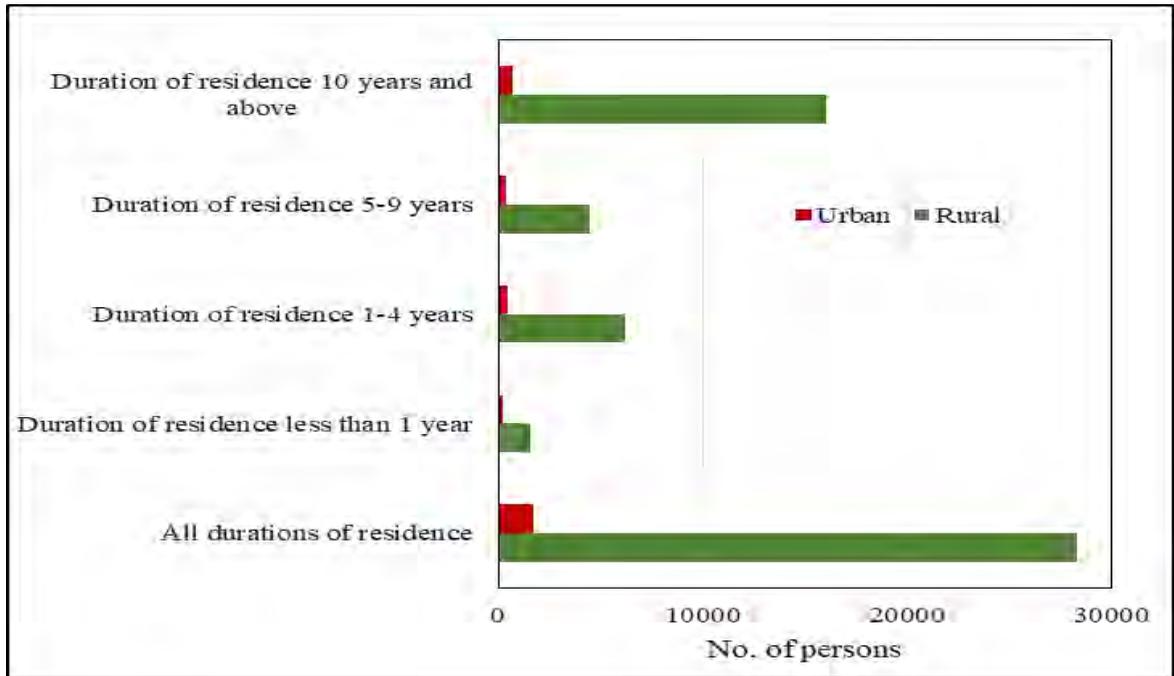


Figure 8 Rural-urban composition of in-migrants people of South district of Sikkim, 1991

Table 6 Rural-Urban composition of in-migrant people in South district of Sikkim, 2011

Duration of residence	Place of enumeration	Persons	Males	Females
All durations of residence	Rural	39,023	14,800	24,223
All durations of residence	Urban	11,925	5,811	6,114
Duration of residence less than 1 year	Rural	3,316	2,101	1,215
Duration of residence less than 1 year	Urban	794	479	315
Duration of residence 1-4 years	Rural	7,463	3,132	4,331
Duration of residence 1-4 years	Urban	2,411	1,087	1,324
Duration of residence 5-9 years	Rural	5,633	1,895	3,738
Duration of residence 5-9 years	Urban	2,160	979	1,181
Duration of residence 10 years and above	Rural	18,867	5,797	13,070
Duration of residence 10 years and above	Urban	5,525	2,780	2,745

Source: Census of India, 2011

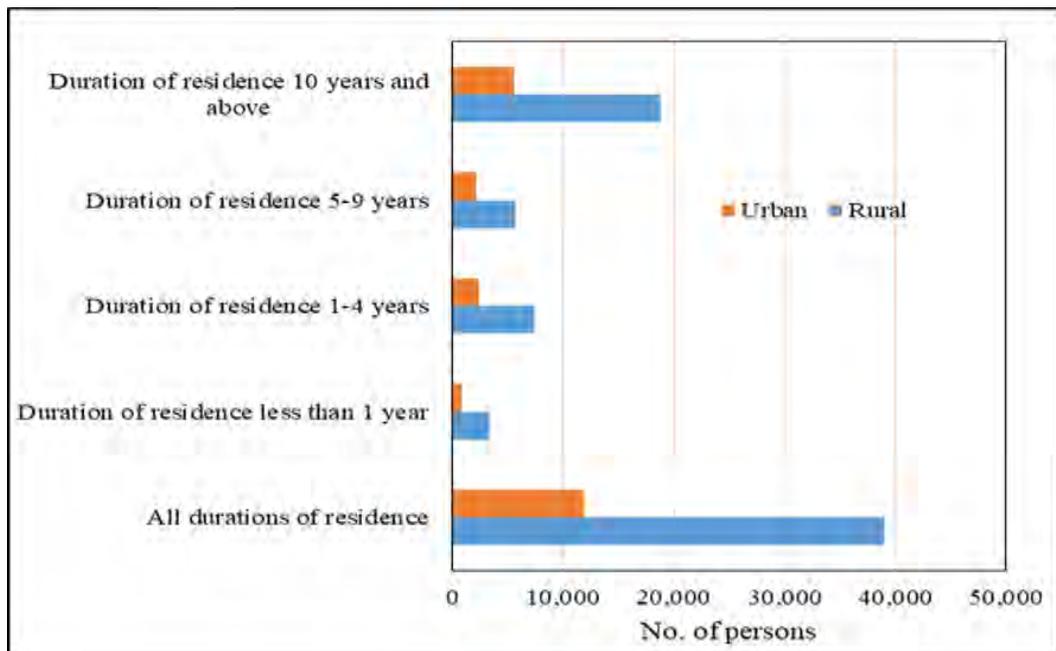


Figure 9 Rural-urban composition of in-migrants people of South district of Sikkim, 2011

1.5.5 Occupational Structure

There are four categories of workers among the migrants in the South district of Sikkim according to the census of India during 1991 and 2001 which are cultivators, agricultural labourers, household industrial workers and other workers. Cultivators are principal occupation among the migrants in the district during both the census. In the census 1991, 54.90 percent migrant workers were mentioned as cultivators, whereas in the census 2001, it was slightly decreased at 51.58 percent of total migrant workers in the district. Other workers of the district occupied second position in terms of occupational structure, which was 37.66 percent in 1991 among the migrant workers and it was slightly increased by 40.78 percent in 2001 (Table 7). But among the migrant workers of the district agricultural labourers and household industrial workers have little significance in the economy of the district. Migrant workers of the district 6.29 percent and 6.26 percent were working as agricultural labourers during the census 1991 and 2001 respectively. Engagement of migrant workers in household industries of the district is very unexpected. Only 1.15 percent and 1.39 percent among the migrant workers of the district were engaged in this sector during 1991 and 2001 respectively (Figure 10). So, it is found that cultivation sector of the district is more remarkable than other sectors of economy of the district.

Table 7 Distribution of migrant workers of South district of Sikkim, 1991-2001

Categories of workers	1991		2001	
	Number	Percentage	Number	Percentage
Cultivators	9219	54.90	14493	51.58
Agricultural Labourers	1056	6.29	1759	6.26
Household industrial workers	193	1.15	390	1.39
Other workers	6325	37.66	11458	40.78
Total workers	16793	100.00	28100	100.00

Source: Census of India, Migration table, 1991-2001

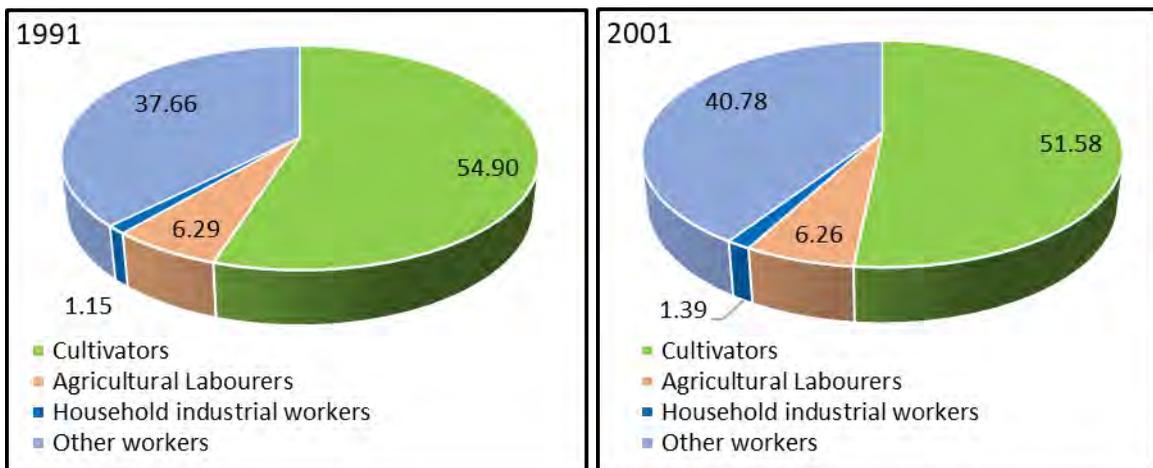


Figure 10 Distribution of migrant workers in different economic sectors in South district of Sikkim, 1991- 2001

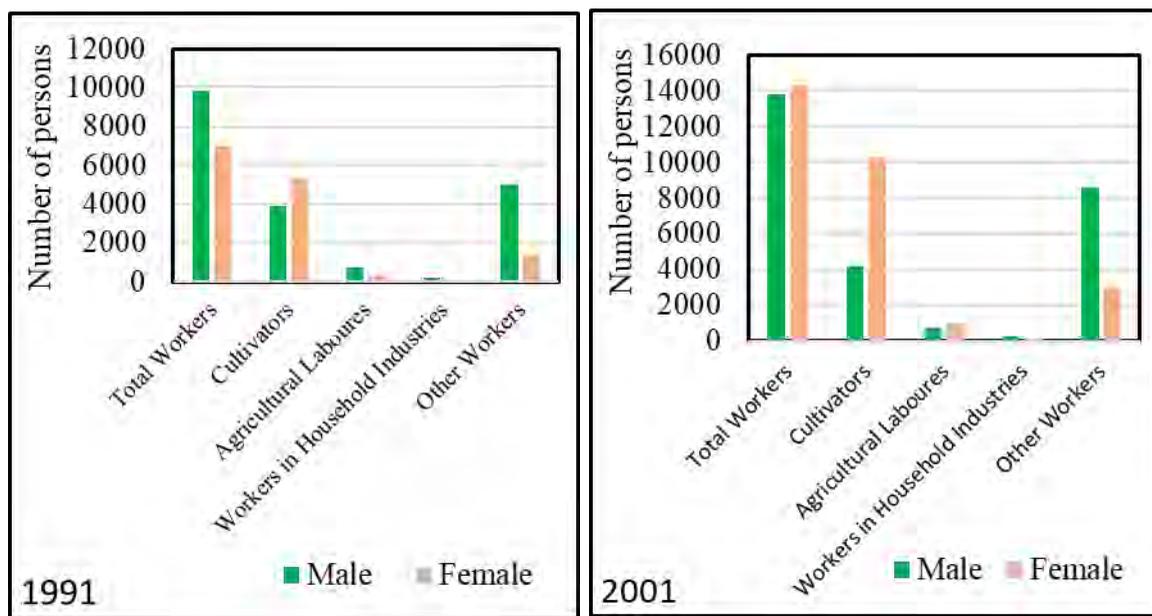
Table 8 Occupational structure of migrants in South District of Sikkim, 1991-2001

Occupation structure	Sex	1991		2001	
		Number	Percentage	Number	Percentage
Total workers	Total	16793	100	28100	100
	Male	9821	58.48	13786	49.06
	Female	6972	41.52	14314	50.94
Cultivators	Total	9219	100.00	14493	100.00
	Male	3875	42.03	4200	28.98
	Female	5344	57.97	10293	71.02
Agricultural Labourers	Total	1056	100.00	1759	100.00
	Male	734	69.51	800	45.48
	Female	322	30.49	959	54.52
Household industrial workers	Total	193	100.00	390	100.00
	Male	179	92.75	245	62.82
	Female	14	7.25	145	37.18
Other workers	Total	6325	100.00	11458	100.00
	Male	5033	79.57	8541	74.54
	Female	1292	25.67	2917	25.46

Source: Census of India, 1991-2011

The occupational structure of the South district of Sikkim during the census 1991 and 2001 illustrates the importance of migrant workers in the district. Total migrant workers in the district were 16793 in

1991 and increased nearly double at 28100 in 2001. Table 8 shows that among the migrant workers of the district 9219 were cultivators in 1991, out of which 5344 were female (57.97%) and 3875 were male (42.03%) and it increased during 2001. A total number of cultivators among the migrant workers of the district were 14493 in 2001, out of which 4200 were male (28.98%) and 10293 were female (71.02%). Numbers of female migrant workers of the district which engaged in cultivation has jumped in number during 2001 in compare to 1991 and male migrants' cultivators have slightly increased in number but, it decreased in ratio in comparison to female migrant cultivators of the district. A total number of agricultural labourers among the migrant workers in the district was 1056 in 1991, out of which 734 were male (69.51%) and 322 were female (30.49%), on the other hand, 1759 numbers of migrants in the district were stated as agricultural labourers during 2001, out of which 800 were male (45.48%) and 959 were female (54.52%). So, female migrant workers are more significant in this sector than the male migrant workers in the district. Total household industrial workers in the district were 193 in 1991, out of which 179 were male (92.75%) and only 4 were female (7.25%), whereas it has increased to 390, out of which 245 were male (62.82%) and 145 were



female (37.18%) in the district during 2001. In the district, 6325 numbers of a migrant were stated as other workers in 1991, out of which 5033 were male (79.57%) and 1292 were female (25.67%). In the census 2001, total 11458 numbers of migrants were engaged in other sectors of economy in the district. Among the 11458 other workers in the district 8541 were male (75.54%) and 2917 were female (25.46%). So, it started after the analysis that there is a massive increased in-migrant worker in the district from 1991 to 2001. The occupational structure of the district revealed that the female workers of the district were much noticeable in the economic activities of the district (Figure 11).

Figure 11 Occupation structure of in-migrants in South district of Sikkim during 1991& 2001

1.6 Conclusion

Age structure, sex composition, marital composition, rural-urban composition and occupational structure of migrants in the study area has been discussed to find out the structure and composition of migrants in the study area. It revealed that sex ratio of the study area is much higher that means female migrants in the study area are dominating in nature. Age structure revealed that the population belonging to working age group are more among in-migrated into the study area than other age groups. Married persons are more migrated in the study area with a female dominating characteristic. Migration of the study area dominated by the in-migrated into the rural areas for both male and female migrants in South district. The occupational structure of the study area stated that females are leading workers in agriculture and allied activities and males are principal workers among the migrants in the study area in different other economic activities such as industries, mines, tourism and other sectors of economy in the study area. But the study indicated that there is a huge structural disparity between in-migrants and others native population in the district, but it should have to be alleviated for the vindicating of an equilibrium society in the study area. Without proper development in the area, some social problems will appear in the near future. So, developmental planning is required by the respective Government and other non-governmental organisations for the in-migrants in terms of structure and composition aspects of population in the study area. Equality between native population and in-migrants' population have to be erected for a sacred society in the study area.

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